LOUDEN

HAY UNLOADING TOOLS
DAIRY BARN EQUIPMENT
HOG HOUSE EQUIPMENT
LITTER & FEED CARRIERS
SLIDING DOOR HANGERS
SPECIALTIES

ROUND TOP FARMS

THE LOUDEN MACHINERY CO.
FAIRFIELD, IOWA

BRANCHES
ALBANY N.Y.
CHICAGO, ILL.
ST. PAUL MINN.

ESTABLISHED 1867

ROUND TOP FARMS
Floyd B. Denny Jr. Mgr.
PAMARISCOTTA, ME.

CATALOG No. 52

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A complete index is placed at back of book for convenience of customers.

THE LOUDEN MACHINERY CO.

ROUND TOP FARMS
Floyd B. Denny Jr., Mgr.
PAMARISCOTTA, ME.

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ROUND TOP FARMS
Edward E. Denny Jr., Mgr.
DAMARISCOTTA, ME.

LOUDEN

Hay Unloading Tools
Barn and Garage Door Hangers
Dairy Barn Equipment
Hog House Equipment
Litter, Feed and Milk Carriers
Cupolas, Ventilators, Drains, etc.
Hardware Specialties

"Everything for the Barn"

General Catalog No. 52

Subject to Change without Notice
Issued, Sept. 1, 1923

The largest organization in the world devoted to the manufacture of Barn and Hog House Equipment

"If It's a Louden, It's the Best"

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New York City	Grand Central Terminal
Philadelphia, Pa.	Lafayette Building
Pittsburgh, Pa.	Standard Life Building
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Kansas City	The Harbison Mfg. Co.
Canadian Factory	Guelph, Ontario

The Louden Machinery Company

Fairfield, Iowa, U. S. A.

Established 1867

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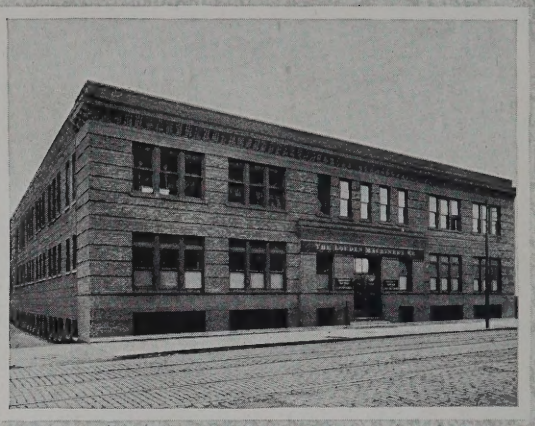
Albany, N. Y.



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Chicago, Ill.

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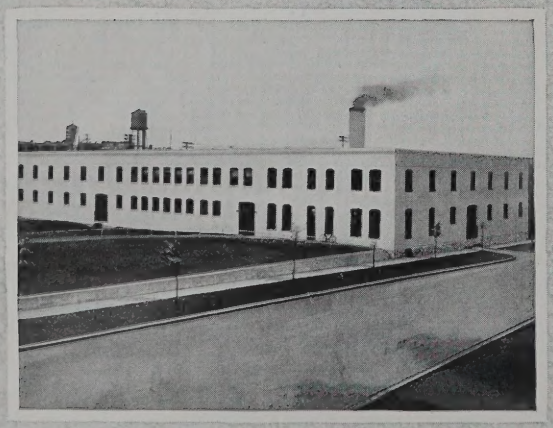
FACTORY AND BRANCH HOUSES OF THE LOUDEN MACHINERY CO.
IN U. S. A.



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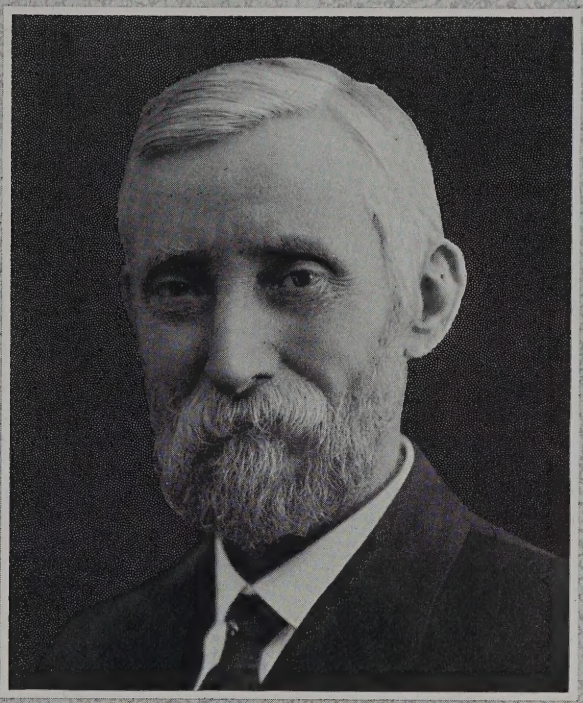

Millions of barns in this and in other countries have been fitted with Louden Equipments, not as a result of special advertising nor a superior selling organization, but because of the sterling quality of the Louden goods.

For more than fifty years it has always been our determination to maintain this sterling quality and to make our products fulfill every claim we make—and more.

A strict adherence to this determination is our guarantee of continued success. Our customers can rely on this assurance to the fullest extent.

William Louden.

Get The Louden Barn Plan Book

LOUDEN BARN PLANS is a 112-page book of practical barn plans and building information, compiled by The Louden Architectural Department. It contains the best of the building ideas gathered in over fifty-five years of specializing along this line by William Louden and his able assistants. It shows seventy-two representative designs for dairy and general purpose barns, and other farm buildings, with full description of each. It treats, in a clear understandable way, the subjects of grading, drainage, concrete work, framing, lighting, ventilating, strength of materials—every problem in fact that confronts the barn builder.

If you expect to build or remodel a barn, now or later, you need this book. We'll gladly mail you a copy on request.

Don't wait till you're ready to build—get it now!

Our Complete Architectural Service

It is the purpose of The Louden Architectural Department to prepare practical barn plans, and to assist barn owners in solving building and equipment problems.

They will give you expert advice on lighting, ventilating, heating, concrete work, strength of materials, fire protection, drainage, disposal of manure, and upon all problems of sanitation or hygiene.

We employ a landscape architect whose work is principally upon large estates, so arranging the farm buildings that they will harmonize with one another and with their surroundings.

Whether your farm is large or small, the buildings should be arranged with due regard to landscape architecture and a general pleasing effect. Farm buildings can display individuality and good architectural design, yet be practical, modern and convenient, separately and collectively.

Consult us on any question of Farm Mechanics.

What is the capacity of my silo?

What size silo will I need for my herd?

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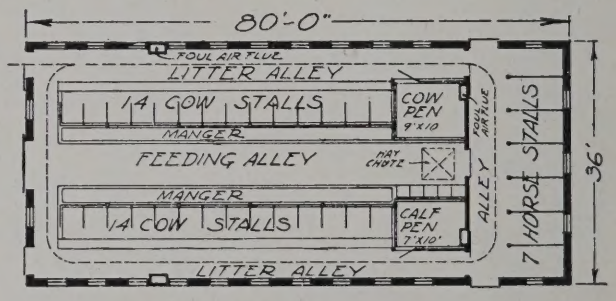
What size post will be necessary to support an overhead grain bin?

What size pulley will be required to run a cream-separator or a churn at proper speed?

We shall be glad to help you answer any such questions, without charge or obligation.



Let us work out free suggestive blue prints to fit your own particular needs.

Let Our Service Department Help You

The Louden Architectural Department is a Service Department of The Louden Machinery Company. A large part of its valuable service is free. We make absolutely no charge for:

Advisory service covering all phases of farm building or any branch of Agricultural Engineering.

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A personal visit from any Louden field representative who may be within your territory.

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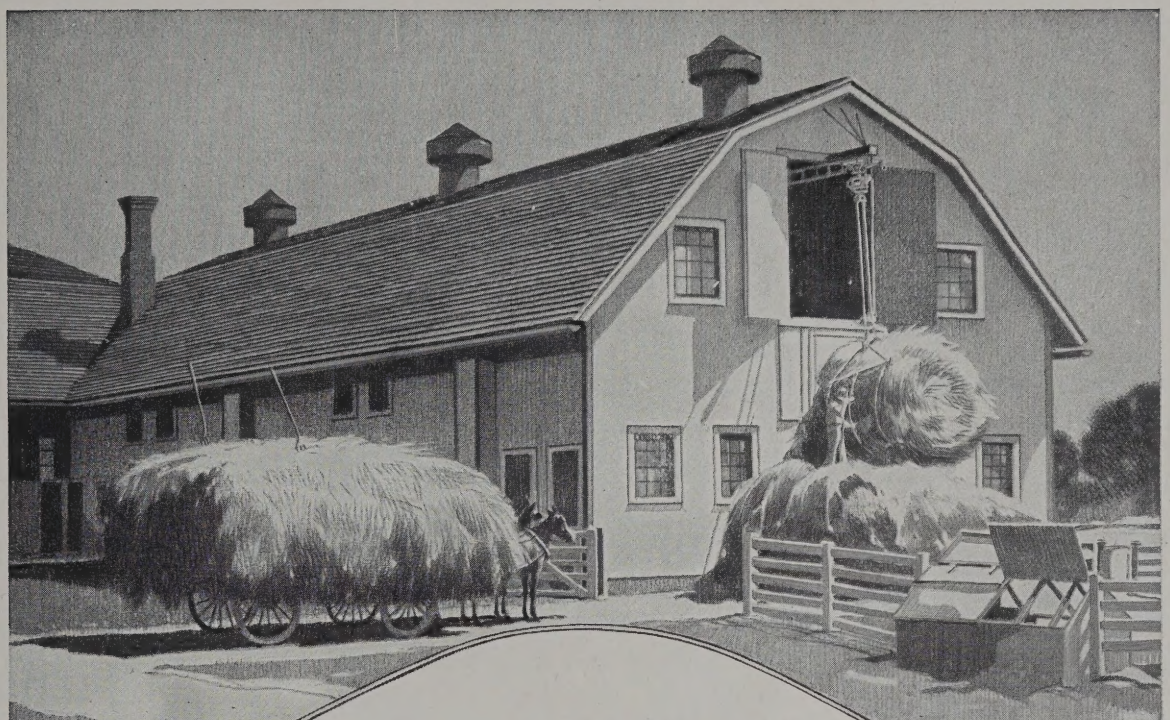
A special trip by one of our architects for consultation on building or landscape problems.

Complete building plans and specifications, including all information required for the completion of the building.

Bills of Material, on which prices are quoted separately.



LOUDEN

Hay Unloading Tools

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Louden Junior Hay Fork Carrier
Fig. 430

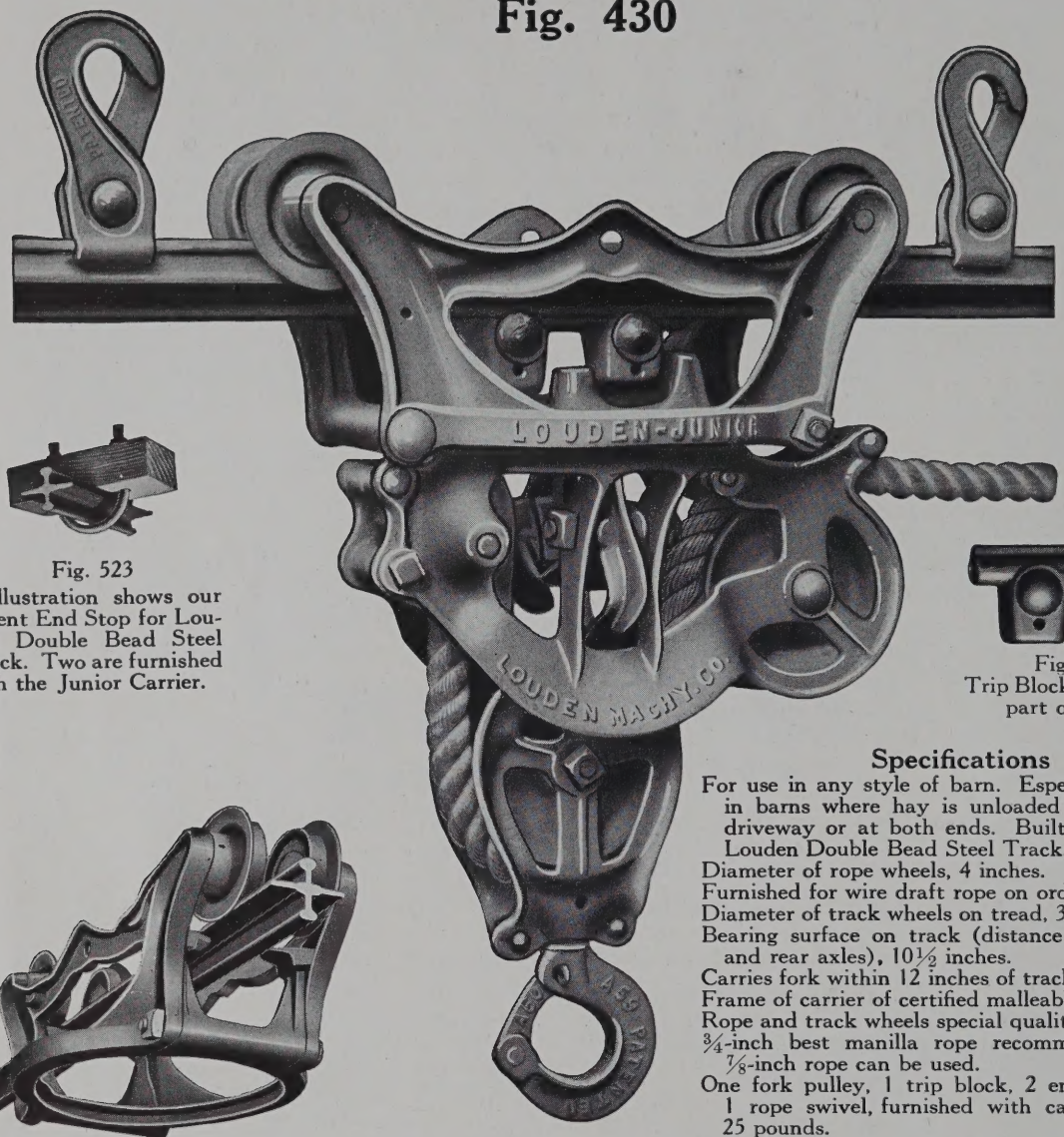


Fig. 523
Illustration shows our patent End Stop for Louden Double Bead Steel Track. Two are furnished with the Junior Carrier.

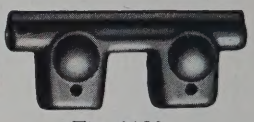
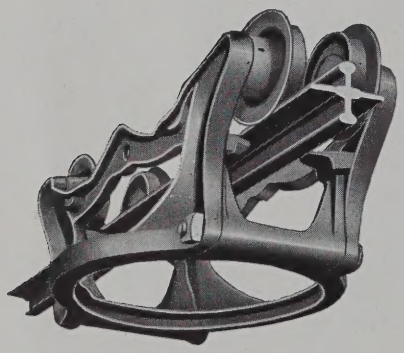


Fig. 1123
Trip Block furnished as part of Carrier.

Specifications

For use in any style of barn. Especially desirable in barns where hay is unloaded from a center driveway or at both ends. Built to operate on Louden Double Bead Steel Track.
Diameter of rope wheels, 4 inches.
Furnished for wire draft rope on order.
Diameter of track wheels on tread, 3 inches.
Bearing surface on track (distance between front and rear axles), 10½ inches.
Carries fork within 12 inches of track.
Frame of carrier of certified malleable iron.
Rope and track wheels special quality gray iron.
¾-inch best manilla rope recommended. 13/16 or ⅞-inch rope can be used.
One fork pulley, 1 trip block, 2 end stop blocks, 1 rope swivel, furnished with carrier. Weight, 25 pounds.



Cut No. 7

Cut 7 is an end view of the upper frame of all the Louden Swivel Carriers, showing their great strength. The sides carrying the wheels are joined together by two end pieces. These end pieces have upwardly extending arms (as seen in cut), which are secured to the sides above while a bolt holds them together at the bottom, thus making the strongest possible frame, and at the same time saving space, as all the space taken up below the track is the thickness of the end pieces. This is a distinctive Louden feature.

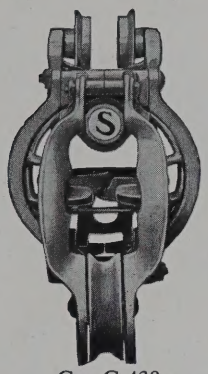
The wheel arms are thoroughly braced and will never spread with a heavy load and let the carrier off the track.

The Louden Junior is the most popular and the biggest selling hay fork carrier ever built. Its construction is extremely simple and compact. More of these carriers are in use in the barns of the country than any other hay carrier made. For twenty-five years it has been standard and doing its work safely and surely on thousands of farms.

This carrier is suitable for use in any style of barn. Where hay is taken up at the end of building it works easily and smoothly as a one-way carrier. It is a "Louden Swivel" carrier and where hay is unloaded from a center driveway it is quickly reversed. The pulley through which the draft rope works in the end of the barn is changed from one end to the other. The carrier can then be swiveled around by giving a swinging pull on the draft rope. No climbing up to the carrier necessary. In long barns where hay is unloaded at both ends the carrier can be changed from one end to the other without changing a rope or pulley.

Louden Junior Hay Fork Carrier — Continued

Cut A
Swivel Iron Knot for end of rope.



Cut C 430
Showing the wide flaring mouth.

The carrier has the wide flaring mouth and the round-topped fork pulley that have made all Louden Carriers popular with hay growers. The fork pulley never fails to enter the carrier at the proper time. It is not necessary that the wagon be directly under the carrier. The wide flaring mouth receives the round fork pulley no matter from what angle the fork is drawn and regardless of swinging load or twisting ropes. No failure, no backing up of team to make the second trial.

The end of the draft rope is fastened in the carrier with our patent swivel iron knot. In threading it the rope is pulled through the tilting eye S (Cut C-430) and the iron knot, resting loosely on the eye, makes a complete, durable and simple swivel. This swivel allows all twists and kinks of the rope to escape. Many times when a new rope is first put in a carrier it will twist and kink so badly as to cause delays and annoyance. Sometimes it is necessary to take the rope out and turn it end for end. The swivel iron knot with the Louden Junior Carrier does away with all that trouble.

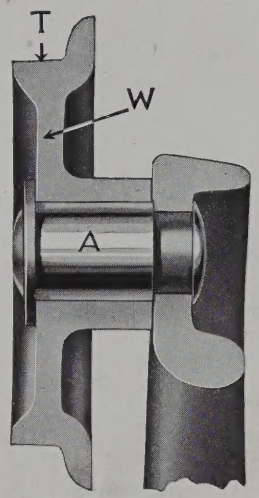
The rope wheels in the carrier and fork pulley are 4 inches in diameter and are heavy and strong. The wheels revolve on heavy malleable iron bushings recessed into the main frame. The short, heavy bushings sustain the weight of the load while the bolt passing through holds the frame of the carrier together. The wheels are perfectly formed and so smooth that the wear on the rope is reduced to a minimum.

The hook in the fork pulley which carries the fork is attached to the pulley by a strong swivel connection. Even should the load of hay turn around while being raised the ropes will not twist. This swivel fork pulley hook makes it practical to set the fork in the hay at any angle desired.

The grappling hooks in the carrier take a deep grip in the frame of the fork pulley. They grip the pulley securely, at the same time permitting the pulley to swing freely. This is of immense advantage as it permits filling the mow up to the track with no risk of breaking carrier or pulley. This also makes it practical to take a large forkful through a small door or over high beams.

The wheel arms are short and thick, reinforced by wide ribs. The wheels are equally strong; they are 3 inches in diameter on tread. The web is directly under the tread where the support is most needed. The track wheels operate on large, heavy steel axles, three-fourths of an inch in diameter, riveted solidly into the malleable frame as shown in Cut No. 1417. Wheels cannot bind and the construction is such that even after years of service should it ever become necessary to put in a new axle it can be done quickly and economically. An improved Louden feature.

The track wheels and axles are milled true, insuring little wear.



Cut No. 1417

Shows the Louden Track Wheel on all **Louden Carriers** having the **web** (W) of the wheel directly under the tread (T) which makes it exceeding strong and durable. Also shows the **steel** axle (A) recessed into the certified malleable iron frame and solidly riveted—a construction that gives greatest possible strength and insures against wheels binding on the track as the load is being carried into the mow.

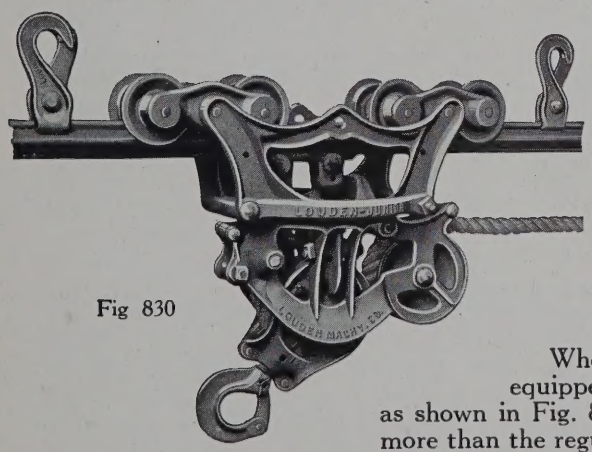


Fig 830

The Louden Junior With Eight Track Wheels

When desired the Louden Junior Fork Carrier can be equipped with eight track wheels and oscillating engine trucks, as shown in Fig. 830. Made up in this way the carrier costs slightly more than the regular Fig. 430 Carrier shown on opposite page. However for certain classes of work the eight wheel carrier is preferable because it affords a wider bearing on the surface of the track.

In the cut the fork pulley is swung back as it would be when pulling hay into a well filled mow.

Louden Senior Hay Fork Carrier
Fig. 1100

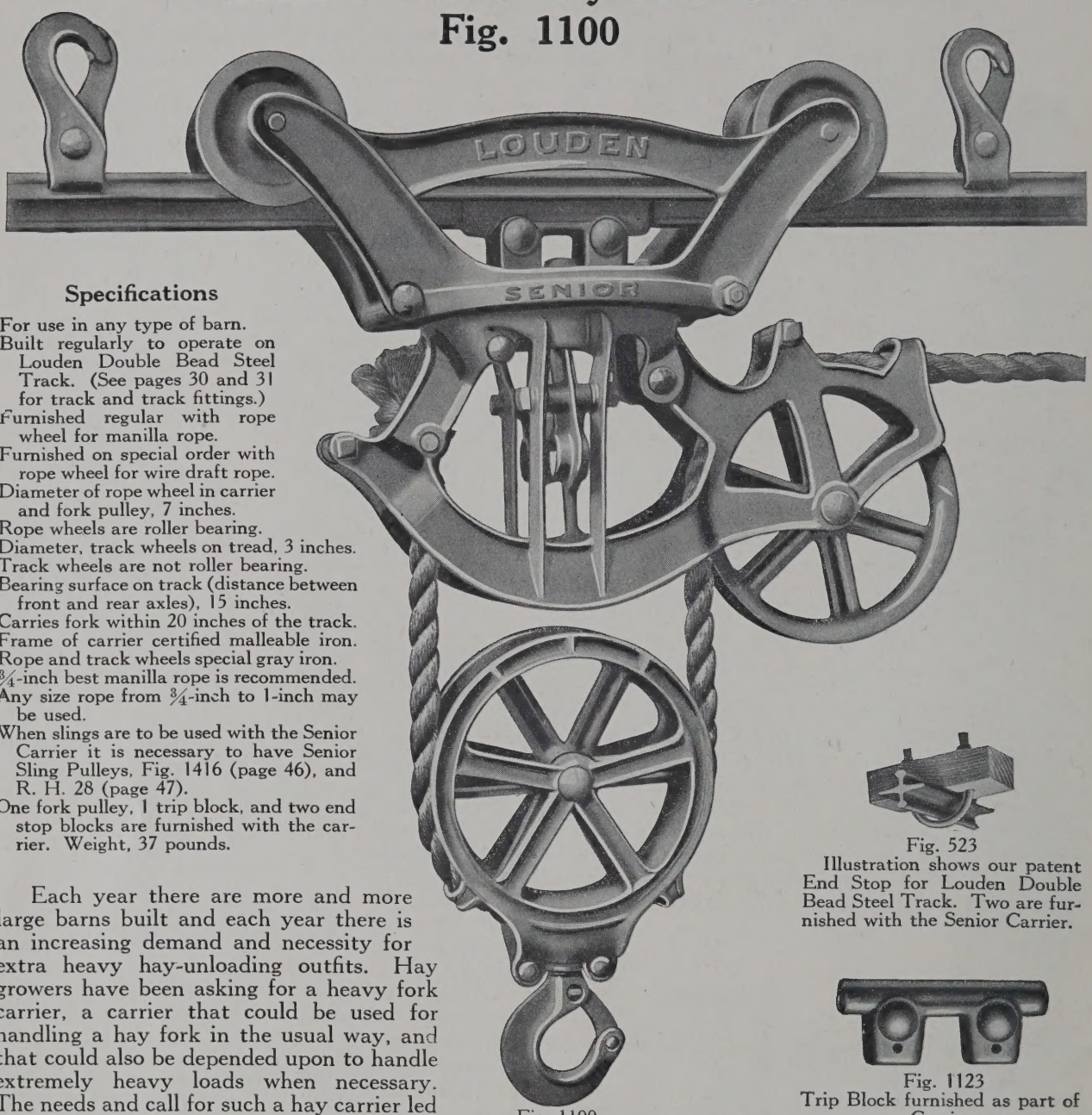


Fig. 1100

Specifications

For use in any type of barn.
Built regularly to operate on Louden Double Bead Steel Track. (See pages 30 and 31 for track and track fittings.)
Furnished regular with rope wheel for manilla rope.
Furnished on special order with rope wheel for wire draft rope.
Diameter of rope wheel in carrier and fork pulley, 7 inches.
Rope wheels are roller bearing.
Diameter, track wheels on tread, 3 inches.
Track wheels are not roller bearing.
Bearing surface on track (distance between front and rear axles), 15 inches.
Carries fork within 20 inches of the track.
Frame of carrier certified malleable iron.
Rope and track wheels special gray iron.
¾-inch best manilla rope is recommended.
Any size rope from ¾-inch to 1-inch may be used.
When slings are to be used with the Senior Carrier it is necessary to have Senior Sling Pulleys, Fig. 1416 (page 46), and R. H. 28 (page 47).
One fork pulley, 1 trip block, and two end stop blocks are furnished with the carrier. Weight, 37 pounds.

Fig. 523
Illustration shows our patent End Stop for Louden Double Bead Steel Track. Two are furnished with the Senior Carrier.

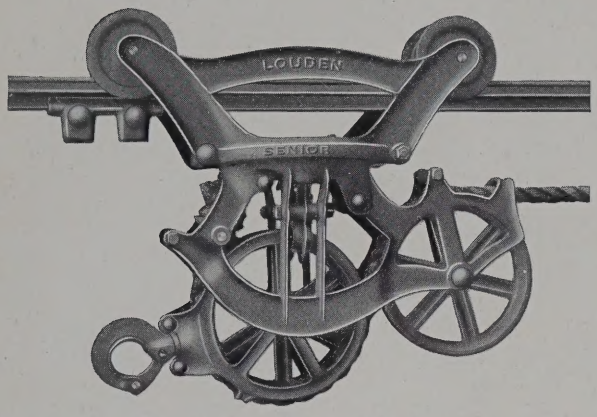
Fig. 1123
Trip Block furnished as part of Carrier.

Each year there are more and more large barns built and each year there is an increasing demand and necessity for extra heavy hay-unloading outfits. Hay growers have been asking for a heavy fork carrier, a carrier that could be used for handling a hay fork in the usual way, and that could also be depended upon to handle extremely heavy loads when necessary. The needs and call for such a hay carrier led us to design and put on the market the Senior Hay Fork Carrier.

This carrier, throughout, is built strong and sturdy and, in addition, its mechanism is simple and sure. It has the wide flaring mouth and the round-topped fork pulley that has been a distinctive feature of Louden Carriers for years. The fork pulley will never fail to register from whatever angle it may be drawn and the grappling hooks take a deep, sure grip on the pulley.

The Louden Senior is a "Louden Swivel" frame carrier and is equally efficient whether hay is taken up from the end of the barn or from a center driveway. When used in a barn having a center drive, when one end of the barn is filled the pulley at that end of the barn, through which the draft rope passes, is carried over and hung in place at the other end. When this is done a swinging jerk on the draft rope from the wagon or ground will reverse the carrier and it will be ready to work in the other end.

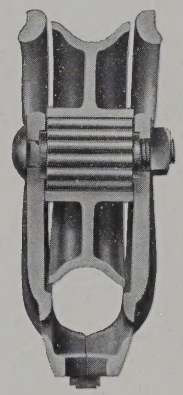
Louden Senior Hay Fork Carrier — Continued



Showing Swinging Fork Pulley.
Drags loads over beams or other obstructions, and mow can be filled up to track without endangering Carrier.

The Louden Senior is being used in thousands of barns all over the world—under almost every conceivable condition. Regardless of the kind of hay put up, the heavy loads handled, the speed at which the work is put through, the rough usage it gets during the stress of haying time—it always works perfectly. Bring the loads in from the field as rapidly as you wish, the Senior will mow them away as fast as you can take them up. This is all made possible because the Senior is so simply designed—so ruggedly and substantially built with nothing but the highest quality of A No. 1 materials and workmanship. Look over its many superior features—you'll be convinced it is the most practical fork carrier for safe, dependable service year in and year out as long as your barn stands.

The bearing surface on the track — the distance from center to center between front and rear track wheels —is 15 inches. This wide bearing surface, makes it possible for the track to carry large loads without strain.



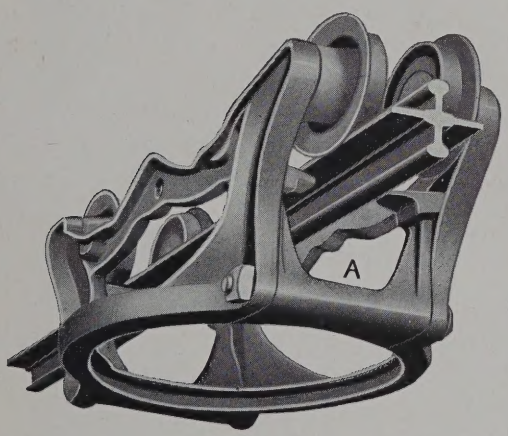
Cut No. 1418

Sectional view showing roller bearing rope wheels in Louden Senior Carrier and Fork Pulley.

The Rope Wheel of the Senior Carrier is roller bearing. This large wheel (7 inches in diameter), together with roller-bearing, 7-inch fork pulley, reduces friction to a minimum, and makes hoisting load from wagon much easier than with an ordinary carrier.

Track Wheels are 3 inches in diameter on tread, are heavy and of great strength. They are not roller bearing, as it takes very little power to pull the carrier along the track compared with the power necessary to hoist the load. To roll too easily would be a disadvantage through the tendency of carrier to "run away" when leaving the trip.

With the Louden Senior Fork Carrier the barn can be filled clear to the track. There is no danger of breaking any part of the carrier, as the load can swing back directly behind carrier when necessary. This feature of the Swinging Fork Pulley also makes it easy to pull large forkfuls through small doors over high beams without danger of breakage.



Cut No. 7

Cut 7 is an end view of the upper frame of all the **Louden Swivel Carriers** showing their great strength. The sides carrying the wheels are joined together by two end pieces A. These end pieces have upwardly extending arms (as seen in cut), which are secured to the sides above while a bolt holds them together at the bottom, thus making the strongest possible frame, and at the same time saving space, as all the space taken up below the track is the thickness of the end pieces A.

The wheel arms are thoroughly braced and *will never spread* with a heavy load and let the carrier off the track.

The round top of the Fork Pulley and the wide flaring mouth of the carrier are big advantages in busy haytime. The wagon can be unloaded from any angle, not having to stand directly under the carrier, and the Fork Pulley will always register true. This feature, together with our patented rope swivel, which lets the kinks and twists run out of the rope while a forkful is being hoisted, saves a world of time that is worth many dollars in haytime.

The rope swivel on this carrier is built into the carrier and is a big improvement over any rope swivel before offered. You simply pass the end of the rope through the swivel and tie a knot in the rope.

With a good solid knot in the end of the rope, everything is sure to hold, and the swivel works free permitting the twist to run out of the rope.

We recommend a ¾-inch manilla rope as it is easier to handle, and costs less than a larger rope. Some users prefer 13/16, ⅞, 15/16, or 1-inch rope, and where a large rope is preferred the carrier handles it perfectly.

Putting Up Alfalfa With a Louden Stacker

A Louden Power Hoist Speeds Up Haying and Helps Beat the Weather

A Louden Grapple Fork Will Put Away Lots of Hay in a Day

Louden Junior Hay Fork Carrier for Wood Track
Fig. 441

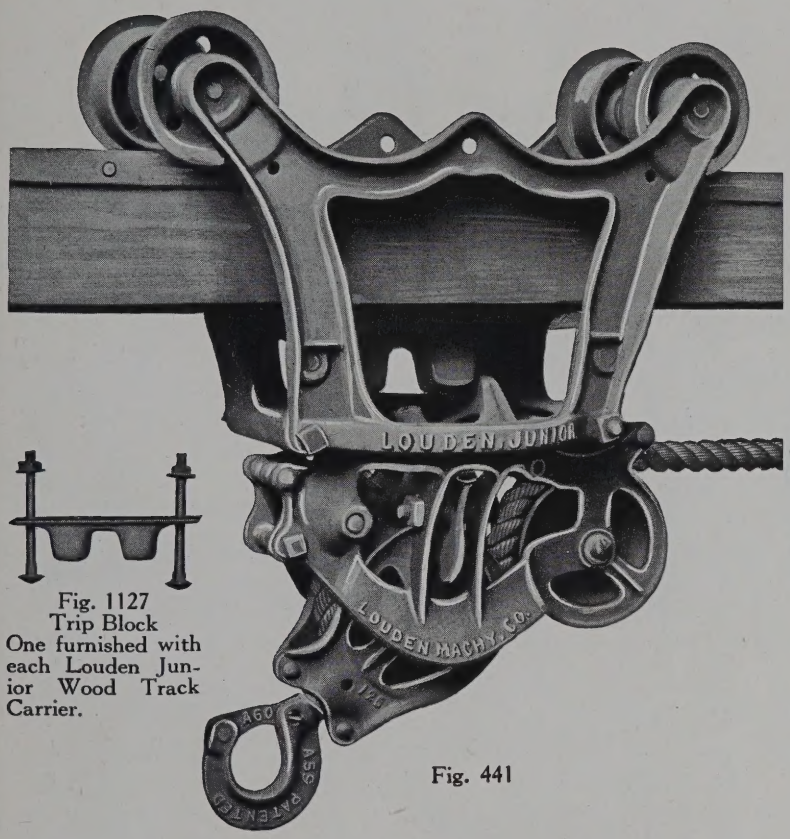


Fig. 441

Fig. 1127
Trip Block
One furnished with each Louden Junior Wood Track Carrier.

Specifications

Operates on 4x4 wood track.
For use in any style of barn.
Diameter of rope wheels, 4 inches.
Diameter of track wheels, 2¾ inches.
Bearing surface on track (distance between front and rear axles) 12¾ inches.
Carries fork within 13½ inches of the track.
Frame of carrier of certified malleable iron.
Rope and track wheels special gray iron.
¾-inch rope, best manilla is recommended. 13/16 or ⅞-inch rope can be used.
Furnished for wire draft rope on special order.
When slings are used with this carrier, it is necessary to have Junior Self-Locking Sling Pulleys, Fig. 330, shown on page 46, and R. H. 1 Registering Head shown on page 47.
One fork pulley, 1 trip block and 1 rope swivel furnished with carrier.
Weight, 28 pounds.

In the past 4x4 Wood Tracks for hay carriers were installed in a considerable number of barns. This was when wood was cheap and steel high in price. At the present time a wood hay track is rarely placed in a building. The steel tracks are as cheap as wood, they occupy less room and hay carriers work so much easier and smoother on the steel that it is no longer an economy to put wood track in a building.

Where track is already in the building or where for some special reason it is desired to use a Wood Track, no better carrier can be put into service than the Louden Junior Wood Track Carrier Fig. 441, as illustrated above.

This carrier is built exactly like the Louden Junior Fork Carrier for steel track (Fig. 430, page 6), except it is built to operate on a 4x4 wood track instead of on steel track.

The carrier is suitable for use in any style of barn. Where hay is taken up at the end of building it works easily and smoothly as a One-Way Carrier. It is a Swivel Frame Carrier and in barns having a center driveway it is easily and quickly reversed to work on either side.

The carrier has the wide flaring mouth and the round top fork pulley of all Louden carriers. The fork pulley never fails to enter the carrier at the proper time. The wide flaring mouth of the carrier receives the pulley no matter from what angle the fork is drawn and regardless of swinging load or twisting ropes—a big time and labor saving convenience.

The grappling hooks in the carrier take a deep grip in the frame of the fork pulley. They grip the pulley securely, at the same time permitting the pulley to swing freely. This permits the mow to be filled clear up to the track without danger of breaking the pulley.

The frame of the carrier is of certified malleable iron built sturdy and strong to handle heavy loads. The members are clamped securely together with bolts; there is no possibility of the frame spreading or breaking under the strain of heavy loads.

Should you at any time desire to use slings instead of a fork with this carrier, attach the Louden Junior Self-Locking Sling Pulleys, Fig. 330 (page 46), and R. H. 1 Registering Head (page 47) and you have a sling outfit that will do its work very nicely.

Louden Carry-All Sling Carrier
Fig. 1306

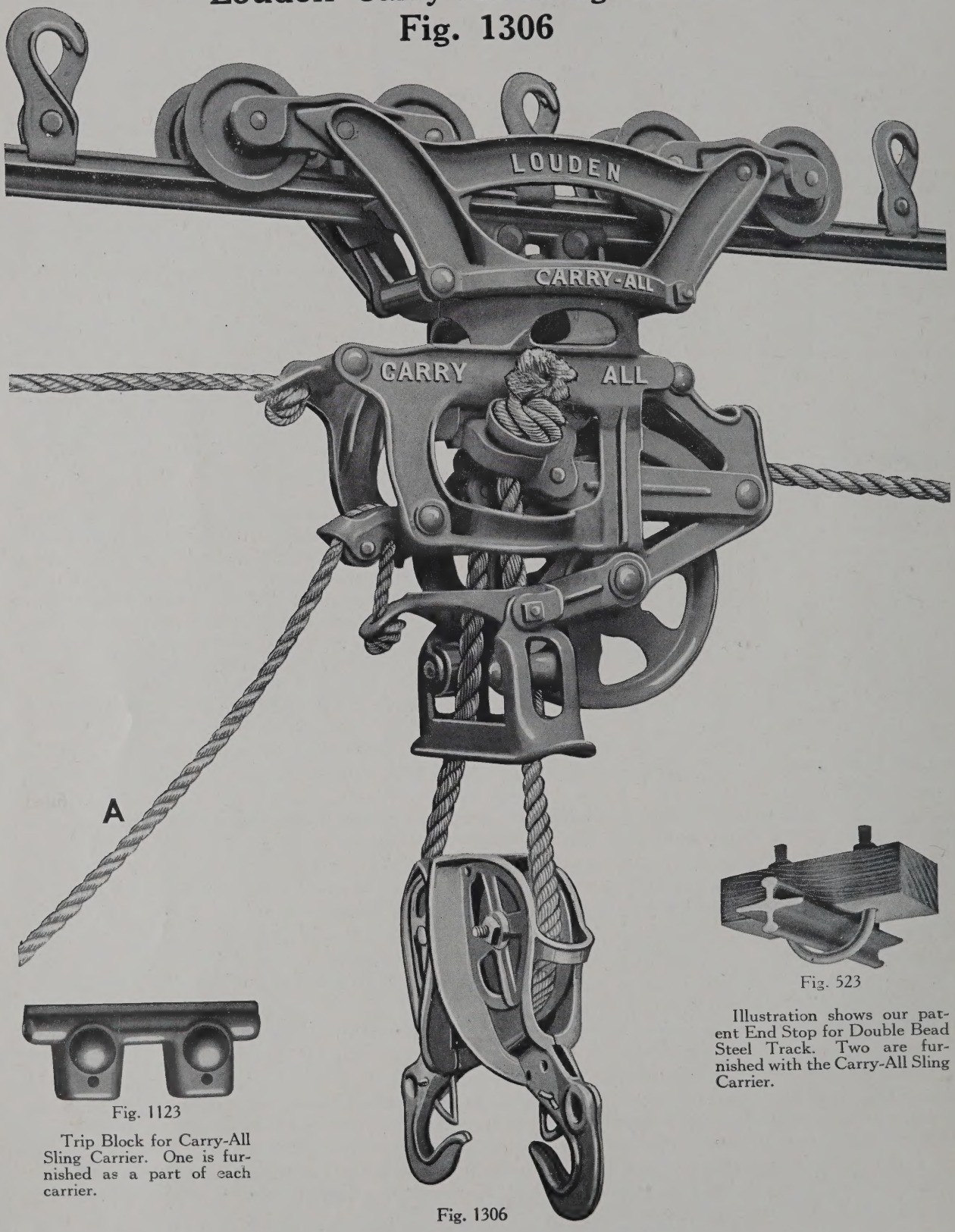


Fig. 1306

Fig. 1123

Trip Block for Carry-All Sling Carrier. One is furnished as a part of each carrier.

Fig. 523

Illustration shows our patent End Stop for Double Bead Steel Track. Two are furnished with the Carry-All Sling Carrier.

Louden Carry-All Sling Carrier—Fig. 1306

Specifications

The heaviest and strongest Hay Sling Carrier made. For use in any type or size of barn.
Built to operate on Louden Double Bead Steel Track.
Diameter of rope wheel in carrier 8 inches.
Diameter of rope wheel in sling pulleys 4 inches.
Rope wheel in carrier is roller bearing.
Diameter of track wheels on tread 3 inches.
Track wheels are not roller bearing.
Bearing surface on track (distance between front and rear axles) 19½ inches.
Carries slings within 23 inches of the track.
Frame of carrier of certified malleable iron.
Rope and track wheels special quality gray iron.
⅞-inch best manilla rope is recommended.
¾-inch rope may be used.
Two sling pulleys, 1 trip block, 2 end stop blocks furnished with each carrier.
Weight complete, 66 pounds.
See pages 30 and 31 for track and fittings.
Also made for cable draft rope.

The Carry-All Sling Carrier was designed to carry big loads, operate easily, and to last season after season for years to come. The advantage gained in the simple mechanism of this carrier, together with its positive rope grip which does not wear or tear the draft rope, makes the Carry-All a real step in advance in the construction of sling carriers for doing heavy work and giving continuous service.

The extreme ease with which this carrier works is due to the sliding trip block, a new feature which not only releases the carrier from the stop instantly with the least amount of work, but also makes it possible to pull the slings back to the wagon without the usual annoyance and trouble in getting the carrier to register on the stop. This is an advantage to be found in no other sling carrier on the market.

Non-Wear Rope Lock

The Rope Lock in the Carry-All is always sure. There is no chance for the rope to slip, nor will the lock wear the rope—it grips it evenly. The Rope Lock castings conform to the circumference of the large rope wheel and are so designed that in holding the load the ribs on the grip castings fit down into the grooves of the rope—without any additional wear and tear on the fiber. The instant the load strikes the carrier the sliding trip block slides down, releases the carrier and throws the rope gripping castings down onto the draft rope, engaging it for a distance of 8 inches and tightly holding it in the groove of the rope wheel so that it cannot slip. See Fig. 1335 next page.

The work of the Rope Lock is also supplemented by a ratchet lock on the side of the rope wheel. When the Lock grips the rope the ratchet lever drops into one of the notches and prevents the rope wheel from turning backwards. This does away with any chafing of the rope. See Fig. 1336 next page.

The end of the draft rope is knotted into a cup-shaped rope swivel which rests in a pocket on the fulcrum lever. When the load strikes the carrier the fulcrum lever exerts a direct pressure on the rope lock and half the weight of the load pulls down on the lock. The heavier the load the better the hold.

The Carry-All Trips Easily

The mechanism is so constructed that under light or heavy loads the trip works the same. The weight of the load raised has no bearing on the operation of the trip. In pulling the slings back to the wagon the simple sliding lock mechanism makes it possible to register the carrier on the stop with no additional effort other than the natural pull required to bring the carrier back out of the mow. The locking and tripping arrangement on the Carry-All is one of the simplest yet most effective ever produced in a sling carrier.

The swinging bumper is an added improvement that makes it easy to fill the mow up to the maximum capacity; makes it possible to drag the load over beams or other obstructions without injuring the carrier in the least. The swinging bumper is also an extremely handy feature when closing the hay door with the carrier.

The rope "A" shown in the cut is the hand trip. By its use the load does not need to be elevated entirely to the top of the barn before being carried into the mow. When the load is at any desired height a pull on rope "A" instantly releases the carrier from the stop, permitting the load to travel into the mow.

The large roller bearing rope wheel reduces friction; is very easy on the rope and makes it possible to lift heavier loads with less power.

The frame of the carrier swivels. It will work with equal satisfaction and efficiency in barns having a center driveway or where hay is taken up at one end. In center-drive barns the change from one end to the other is easily and quickly made. The pulley in one end of the barn is changed over to the other end; the carrier can then be swiveled around from the barn floor. No climbing up to the carrier necessary.

There are 8 track wheels on each carrier working on oscillating "*engine trucks.*" This distributes the load evenly on the track and insures that every wheel is going to run true and carry its share of the load.

The sling pulleys carry the load at right angles to the track. This is important as when the hay is dropped in the mow its spread is at right angles to the track, requiring less labor and time to mow it back.

Sectional Views Showing Carry-All Non-Wear Rope Grips

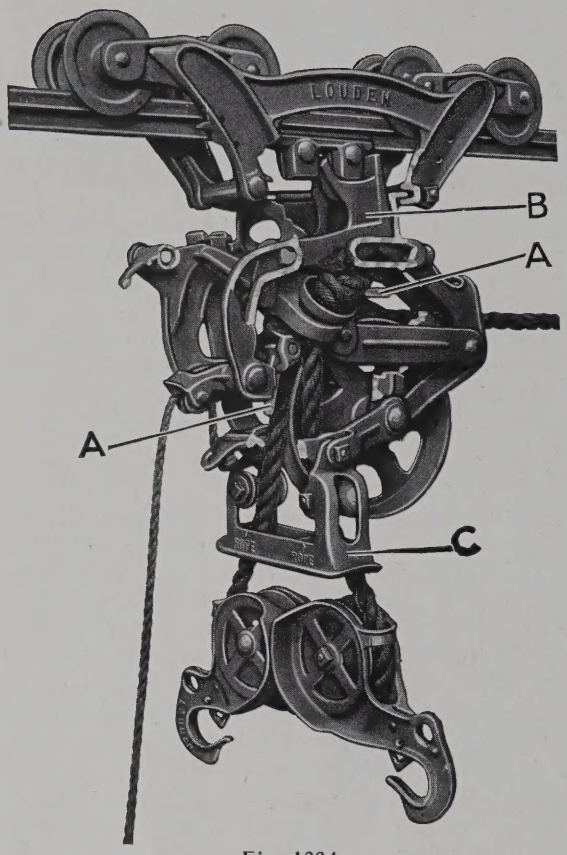


Fig. 1334

In both Figs. 1334 and 1335 a portion of the side of the Carry-All Carrier is cut away to show the Easy-On-The-Rope locking mechanism.

Fig. 1334 illustrates the position the carrier is in as the load is being lifted—the rope lock A is entirely free from the rope.

Fig. 1335—The sling pulleys carrying the load have reached the carrier bumper C and pushed it up—thereby permitting the slide trip B to drop down and release the carrier from the track stop and at the same instant force the rope lock A down tightly around the rope, gripping it firmly in the groove of the large wheel, holding the load absolutely secure to the carrier as it travels into the mow.

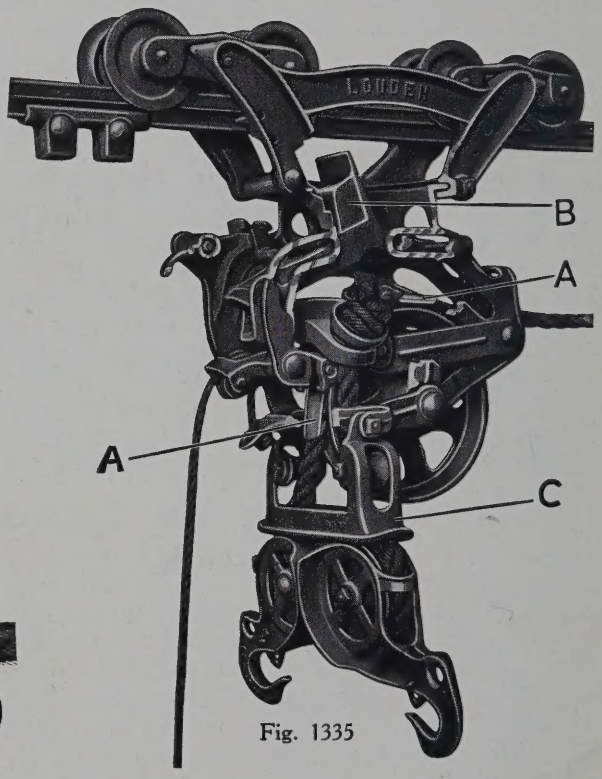


Fig. 1335

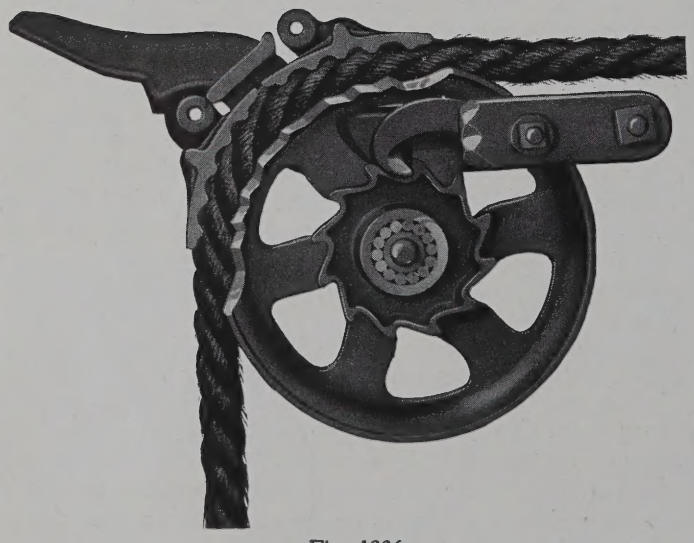
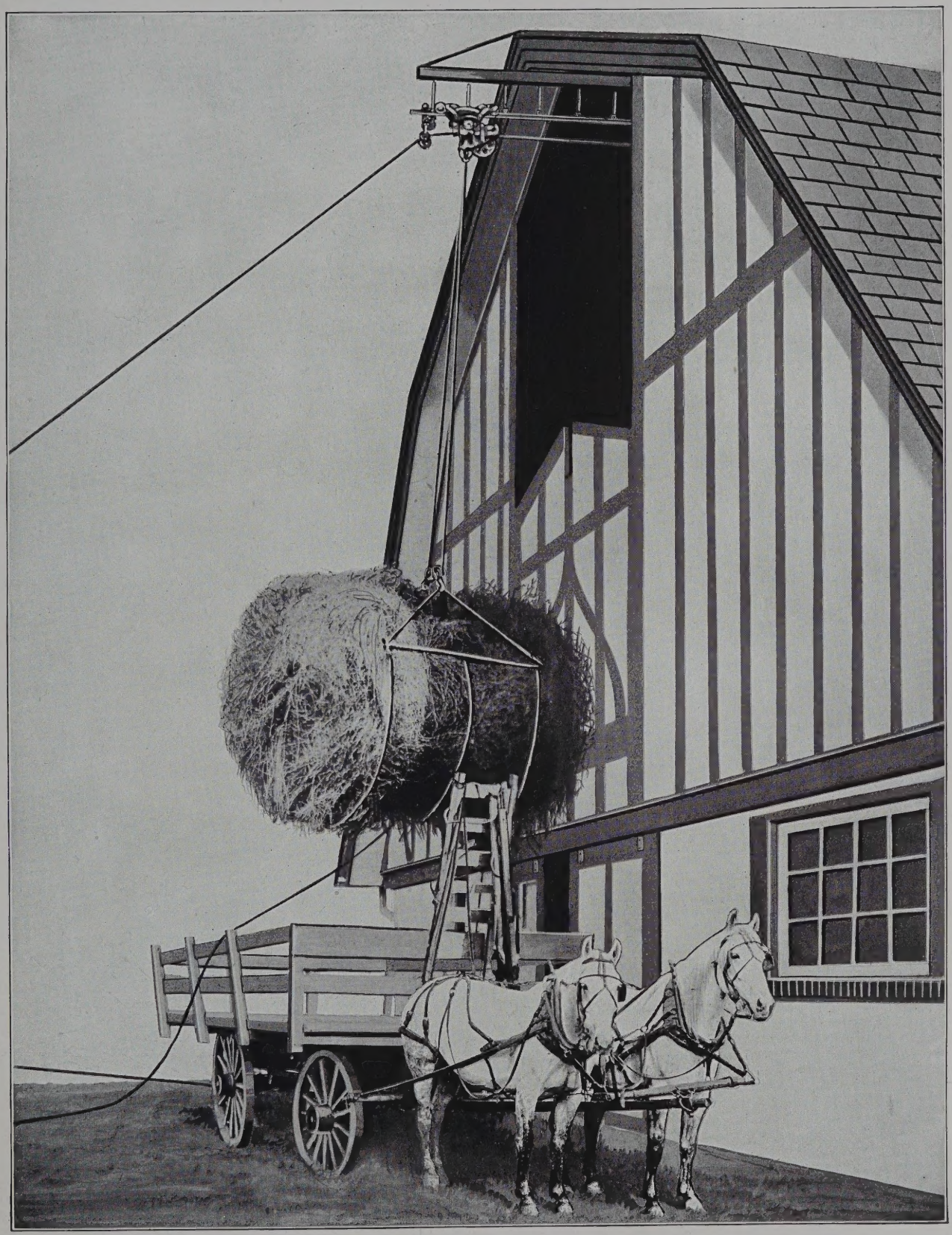


Fig. 1336

Fig. 1336 is a detail view of the rope locks and large wheel. Note that the corrugations on the rope gripping castings are not sharp. They also run diagonally across the rope so as to insure the least possible wear. When the rope locks are holding the load a ratchet on the large wheel is also thrown into action, thereby taking a portion of the strain off the rope and making it absolutely impossible for the load to slip back.

This same identical rope lock is used in the Easy-Lock Carrier shown on page 16.



Louden Easy Lock Sling Carrier
Fig. 1307

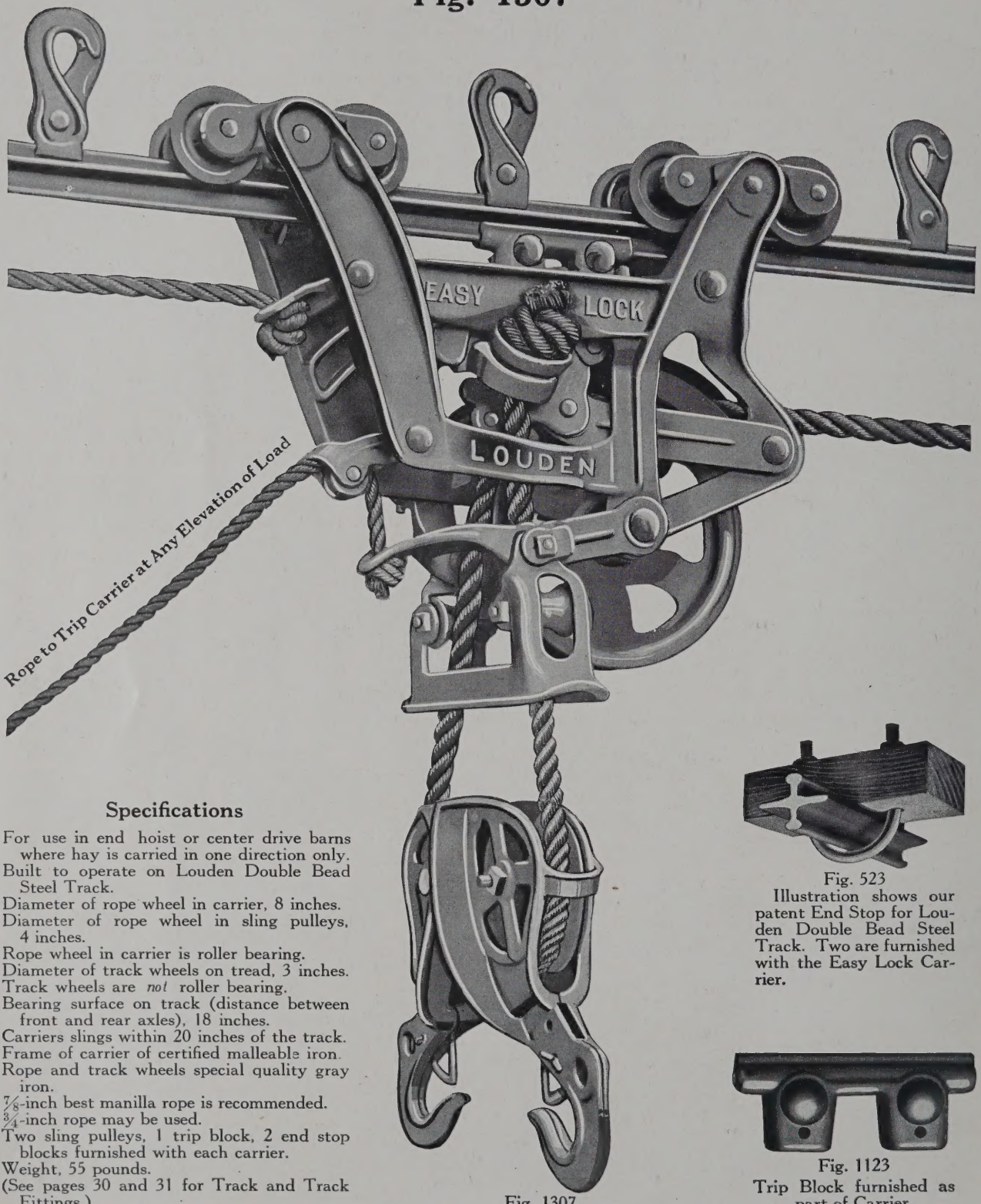


Fig. 1307

Specifications

For use in end hoist or center drive barns where hay is carried in one direction only.
Built to operate on Louden Double Bead Steel Track.
Diameter of rope wheel in carrier, 8 inches.
Diameter of rope wheel in sling pulleys, 4 inches.
Rope wheel in carrier is roller bearing.
Diameter of track wheels on tread, 3 inches.
Track wheels are *not* roller bearing.
Bearing surface on track (distance between front and rear axles), 18 inches.
Carriers slings within 20 inches of the track.
Frame of carrier of certified malleable iron.
Rope and track wheels special quality gray iron.
7/8-inch best manilla rope is recommended.
3/4-inch rope may be used.
Two sling pulleys, 1 trip block, 2 end stop blocks furnished with each carrier.
Weight, 55 pounds.
(See pages 30 and 31 for Track and Track Fittings.)

Fig. 523
Illustration shows our patent End Stop for Louden Double Bead Steel Track. Two are furnished with the Easy Lock Carrier.

Fig. 1123
Trip Block furnished as part of Carrier.

The Louden Easy-Lock Sling Carrier — Fig. 1307

Non-Swivel

Where hay is to be carried in one direction only, as in an end hoist barn, or a center drive barn with one-side mow—the Louden Easy-Lock is the most practical sling carrier ever designed for the work.

In the first place, there is no added advantage in having a swivel carrier when the load is to be carried in one direction only. By building the Easy-Lock non-swivel carrier especially for this class of work, we were able to keep down the weight by leaving out the material necessary for the swivel mechanism and at the same time make it an exceptionally strong and powerful one-way carrier thoroughly efficient in every detail for lifting big loads. The swivel carrier is a most practical carrier in barns where it is necessary to carry the hay in both directions, but there is no need of pulling the extra weight and paying the additional cost necessary for a swivel when there is no occasion to ever use the swivel feature. The Easy-Lock embodies all the valuable features of the Louden Carry-All except that it does not swivel.

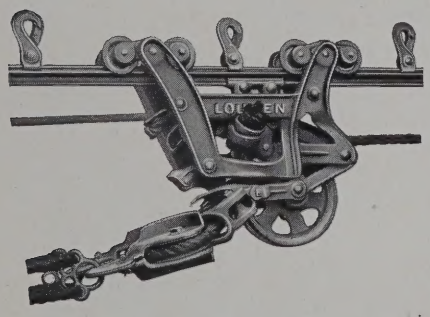
This carrier has the same sure rope lock as that used in the Carry-All shown on previous pages. The rope lock castings conform to the circumference of the large wheel so that when the load strikes the carrier, these rope lock castings firmly hold the rope in the groove of the wheel so that it cannot possibly slip. These grip castings are so designed that they will not chafe or unduly wear the rope. See page 14.

Always Operates Easily

It is surprising how easily and smoothly the Easy-Lock operates. When the load strikes the bumper the carrier instantly releases from the stop and glides smoothly along the track into the mow almost without any pull whatever from the team. The reason is—the rope locking mechanism acts entirely independent of the load. Regardless of whether the load is heavy or light the carrier always releases in just exactly the same easy way. This valuable feature can be found in no other rope locking carrier on the market except the Louden Easy-Lock and the Louden Carry-All.

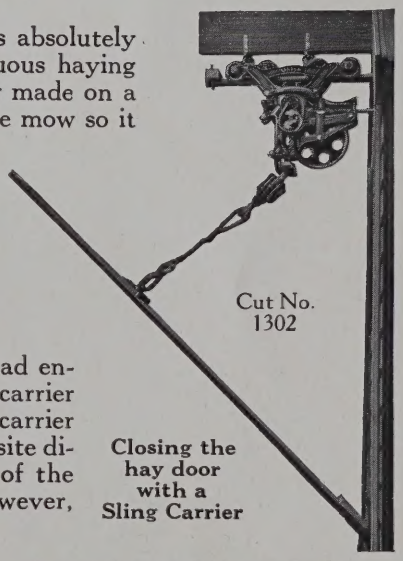
The working parts of the Easy-Lock are extremely simple. There is absolutely nothing complicated that is liable to get out of order during the strenuous haying season. The sliding lock is one of the latest and best improvements ever made on a sling carrier, making it possible to pull the empty carrier back out of the mow so it will register on the stop without extra exertion on the operator's part.

A very valuable feature in the Easy-Lock is that the sling pulleys carry the load at right angles to the track, delivering the hay into the mow just as it comes from the wagon. When the load is tripped it spreads out broadly at right angles to the track, requiring much less labor and time to mow it back. The Easy-Lock is also arranged with a separate trip rope (shown in cut) by use of which the load may be carried into the mow at any elevation desired without lifting the load entirely up to the carrier. While this carrier was designed mainly for a one-way carrier it can be reversed to go in the opposite direction by running it off the end of the track and turning it around. However, where necessary to swivel the carrier we suggest using our Carry-All Sling Carrier shown on page 12.



As shown above, with the Louden Easy-Lock Carrier the hay mow can be filled clear up to the track. There is no danger of breaking any part of the carrier as the swinging bumper makes it possible to drag the load directly behind the carrier. This feature also makes it easy to pull large sling loads through small doors and over high beams without danger of breaking anything.

In addition, the swinging bumper is very handy in closing the hay door with the carrier. It also makes it possible to lift the sling load from any angle. It is not necessary for the wagon to be directly below the carrier, as the swinging bumper always adjusts itself to the different angles at which the load is elevated.



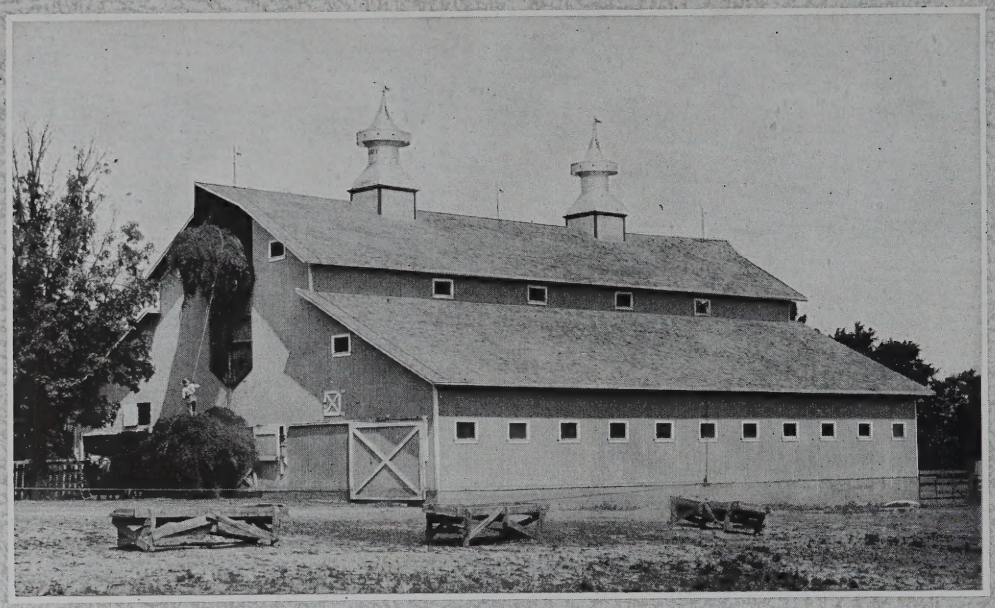
Closing the hay door with a Sling Carrier

When it is desired to close the hay mow door with the Carry-All, Easy-Lock or any other sling carrier, the sling pulleys should be attached to the door in the manner shown by Cut No. 1302.

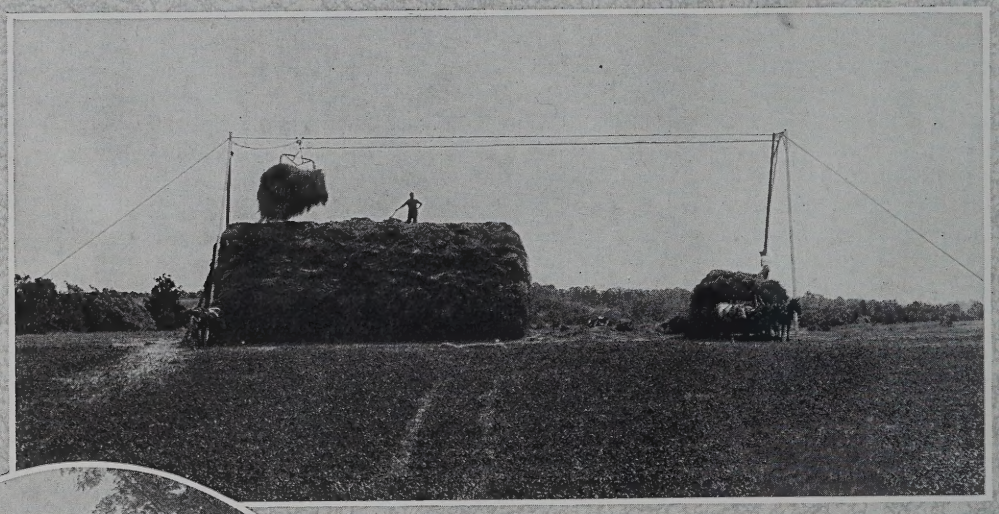
The door should be lifted from about a third the distance from the top instead of from a point near the top; otherwise the pulleys will be drawn so far to one side they will not release the carrier easily.

A short piece of rope, with a loop at the free end, should be attached to the door by means of an eye-bolt or U-bolt. It should be long enough to permit the sling pulleys to trip the carrier when door is at an angle of about 45 degrees. For the Carry-All or Easy-Lock Sling Carriers about 4 ft. of rope is required for a 10-ft. door, and 5 ft. for a 12-ft. door.

When the carrier leaves the trip it is drawn along the track far enough to close the door.



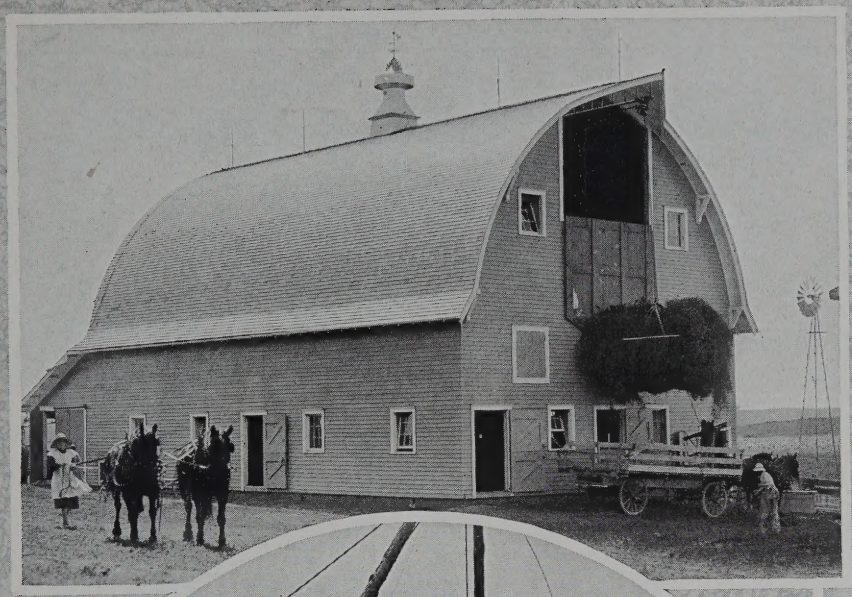
Louden Grapple Fork handles the load clean without scattering



The Louden Stacker Outfit in operation

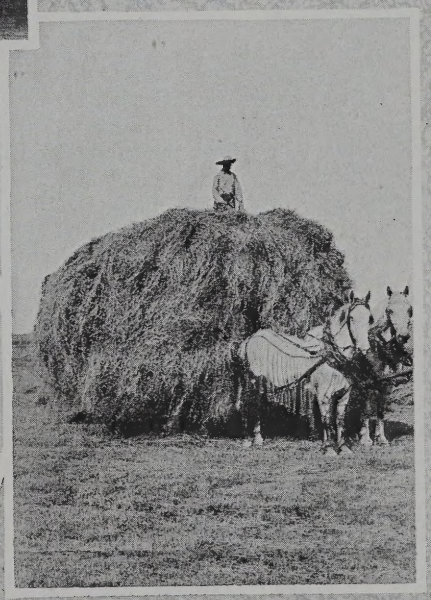
"Sunny Hay Time"

Curing Alfalfa

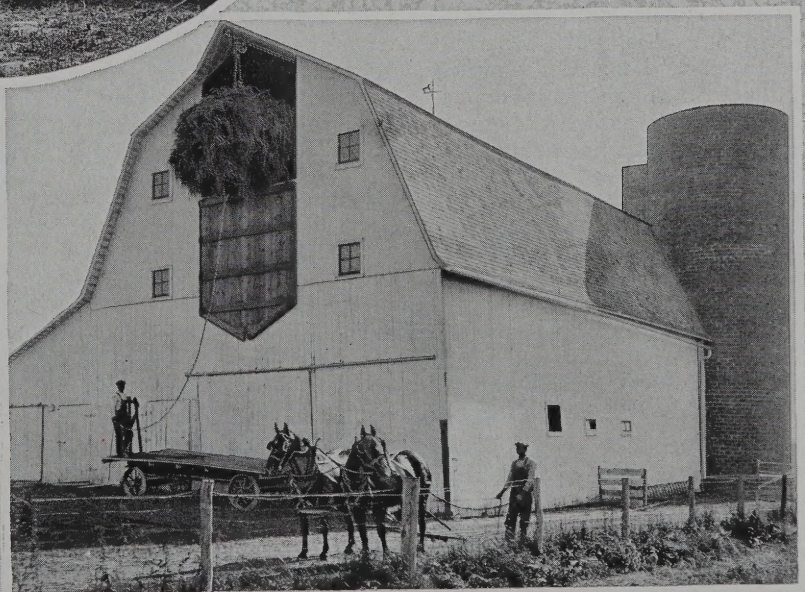


Louden Slings Handle
Big Loads Quickly

A Louden Grapple Fork
makes stacking easy



"Loaded" Ready for the Barn



Louden Slings Clean the Rack

Louden Cross Draft Hay Carrier — Fig. 817

For Sling or Fork

Illustration shows carrier rigged for slings.

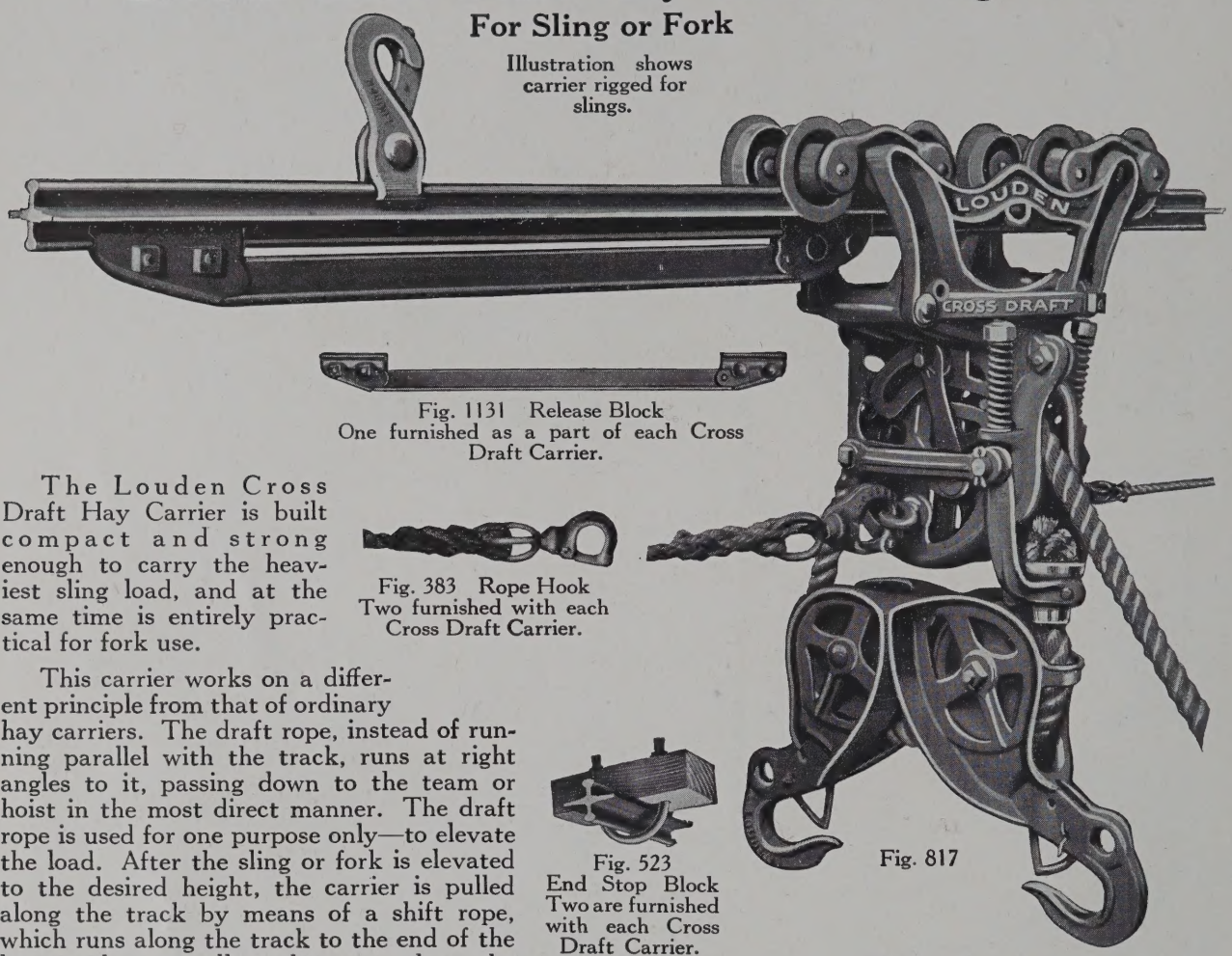


Fig. 817

Fig. 1131 Release Block
One furnished as a part of each Cross Draft Carrier.

Fig. 383 Rope Hook
Two furnished with each Cross Draft Carrier.

Fig. 523
End Stop Block
Two are furnished with each Cross Draft Carrier.

The Louden Cross Draft Hay Carrier is built compact and strong enough to carry the heaviest sling load, and at the same time is entirely practical for fork use.

This carrier works on a different principle from that of ordinary hay carriers. The draft rope, instead of running parallel with the track, runs at right angles to it, passing down to the team or hoist in the most direct manner. The draft rope is used for one purpose only—to elevate the load. After the sling or fork is elevated to the desired height, the carrier is pulled along the track by means of a shift rope, which runs along the track to the end of the barn and over pulleys down to where the team or hoist works.

With this plan the team travels only half as far as with the ordinary carrier. When the team is walking out from the barn, it is hoisting the load; when the load reaches the proper height, the shift rope is hooked to the team and as the return to the barn is made the carrier is pulled along the track into the mow. As there is a shift rope on each side of the carrier, one is always ready to use to return the empty carrier, no matter into which mow the hay has been carried.

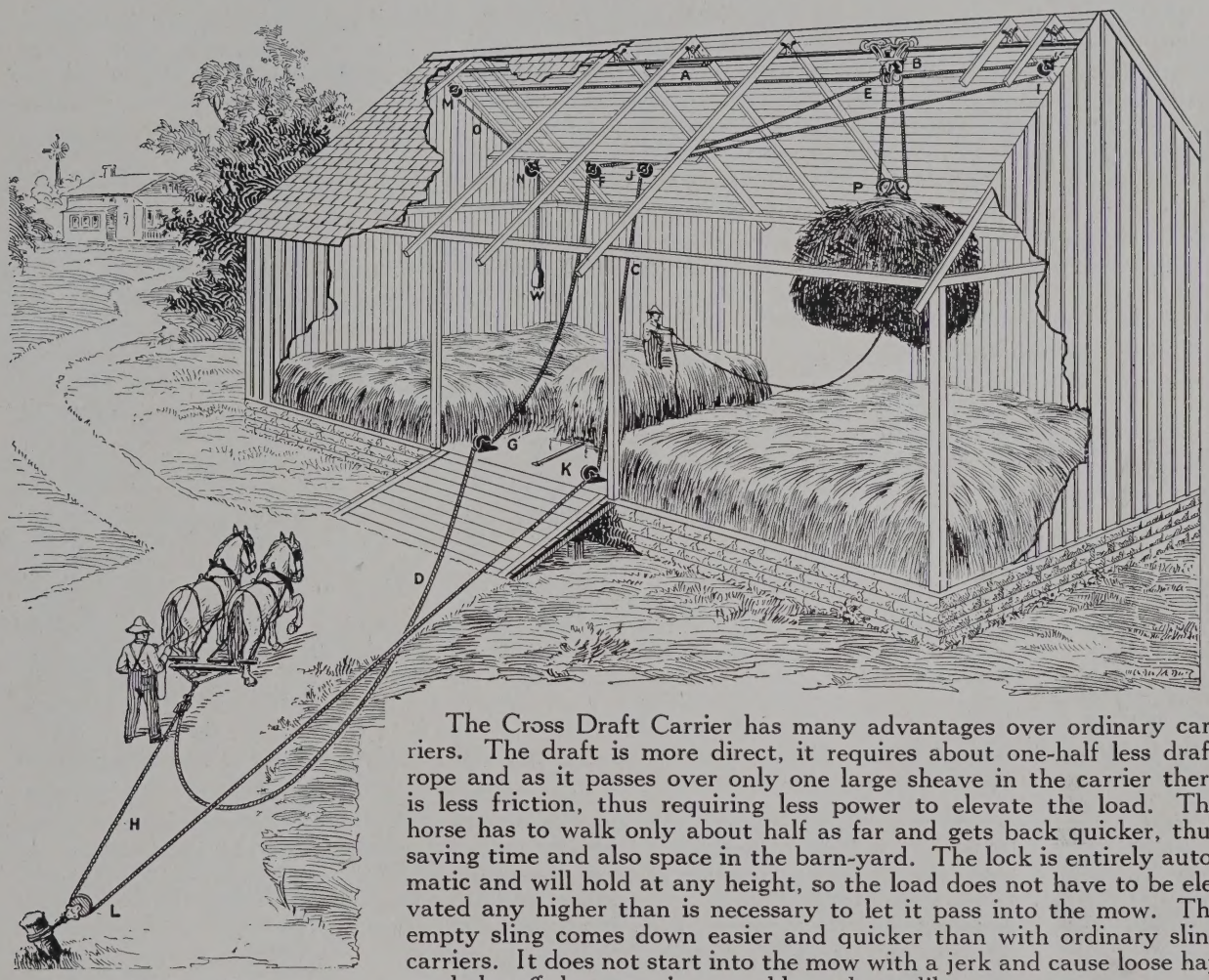
For handling slings the carrier should be rigged with sling pulleys, as shown in the illustration. For fork use the sling pulleys would be replaced with the Louden Fork Pulley. (See Figs. 366 and 1139, page 49.) If a Louden Fork Pulley is not at hand, any common pulley can be used.

The carrier is provided with an automatic lock. This lock will hold the hay suspended at any height. When the load is elevated high enough to pass into the mow, the team is stopped and turned back toward the barn. The end of the idle shift rope is attached to the singletree and as the team returns to the starting place, the carrier is drawn along the track to the end of the barn.

Specifications

Recommended for use in barns where hay is elevated from a center driveway.
Built to handle hay slings, but will handle hay fork with equal satisfaction.
Operates on Louden Double Bead Steel Track.
Diameter of the rope wheel in carrier, 6 inches.
Diameter of the rope wheels in sling pulley or fork pulley, 4 inches.
Diameter of track wheels on tread, 3 inches.
Bearing surface on track (distance between front and rear axles), 16 inches.
Carries slings or fork within 21 inches of the track.
Frame of the carrier of certified malleable iron.
Rope and track wheels best gray iron.
7/8-inch best manilla rope is recommended and urged for use with this carrier.
13/16-inch rope can be used, but 7/8-inch is better.
Two sling pulleys, 1 release block, 1 three-part rope hitch, 2 swivel rope hooks, 2 end stop blocks furnished with each carrier. Unless otherwise specified sling pulleys will be furnished with the carrier.
If hay fork is to be used, fork pulley (Fig. 366 or 1139, page 49) will be furnished instead of sling pulleys.
Weight for sling use, 45 pounds.
Weight for fork use, 38 pounds.

Louden Cross Draft Hay Carrier — Continued



Cut No. 822

The Cross Draft Carrier has many advantages over ordinary carriers. The draft is more direct, it requires about one-half less draft rope and as it passes over only one large sheave in the carrier there is less friction, thus requiring less power to elevate the load. The horse has to walk only about half as far and gets back quicker, thus saving time and also space in the barn-yard. The lock is entirely automatic and will hold at any height, so the load does not have to be elevated any higher than is necessary to let it pass into the mow. The empty sling comes down easier and quicker than with ordinary sling carriers. It does not start into the mow with a jerk and cause loose hay to shake off, but goes in smoothly and steadily.

Cross Draft Carrier in Center Hoist Barn

Cut 822 shows our Cross Draft Carrier at work in a center hoist barn. The sling load has been elevated by the Draft Rope D until it is high enough to pass into the mow, *the automatic lock in the carrier holding it at any desired height.* The Shift Rope C has been connected to the trip of the Rope Hook, the horses have been turned back toward the barn and the Sling load is being drawn into the right-hand end of the barn and the operator is *ready to trip it* when it reaches the proper place. The draft rope is first secured to the Spring Clevis E of the Carrier B by means of *our patent swivel*, then passed down through the Sling Pulleys P, then up through the carrier and on through the Draft Pulleys F and G and is connected to the Rope Hook. The Shift Rope C is fastened to one of the *swivel eyes on the carrier*, and is then passed through the Shift Pulleys I, J, K, and L.

In elevating the hay the team is driven from the Pulley G to or past the Pulley L, as may be required by the distance the hay is to be elevated, and in turning back, the shift rope is connected to the trip of the Rope Hook, which *draws the carrier with its load into the mow* as the team is driven to the barn. The shift rope is then tripped from the rope hook, the carrier is drawn back to the Release Block A, by the Weight W, *when the empty sling will descend of its own weight, and when unhooked from* the Pulleys P everything will be ready for another load.

The instant the horses stop, or if a singletree or anything else should break, *the lock takes the weight of the load* and holds it securely without a particle of slipping. While loaded, the lock is *always in position* to hold the load at any point of elevation.

Cross Draft Carrier in Center Hoist Barn — Continued

The carrier will work without the Release Block A by removing the lock-latch, but it works much better with it, as by this means *the empty sling or fork cannot drop down in the mow.* This is a fault that *all* other cross draft carriers have and we have entirely overcome it by the use of this lock-latch in the carrier and the Release Block A on the track. The carrier does not have to stand *over the release block* in elevating the load, notwithstanding this is its usual position. It may stand on either side or be drawn across it, *without any effect when loaded,* but it will *always release the lock when the carrier is empty.* In this way the empty fork or sling is prevented from dropping down in the mow, while the *lock* will *always be released* to permit them to descend at the proper place.

The stake to which Pulley L is fastened should be set far enough out in the yard to permit the team, after turning back, to draw the carrier *to the end of the mow* before getting too close to the Pulley G, and there should be 10 feet extra to connect the shift rope easily and quickly to the trip of the Hook H. The longer the barn, the *farther away* the Pulley L must be set.

To take the hay into the other end of the barn, remove the Weight W from the Shift Rope O which is connected to the swivel eye on the other side of the carrier and is passed through the Shift Pulleys M and N. *Withdraw the Shift Rope C* from the Pulleys K and L and attach to it the Weight W. Now run the Shift Rope O through the Pulley K and then through the Pulley L, and you are *ready for business* in the other end of the barn. It may be better to use a *separate rope* out in the barn-yard, which may be done by using a hitch similar to A, Fig. 819. When this is done the Shift Ropes C and O will only have to be long enough to pass through the Pulley K.

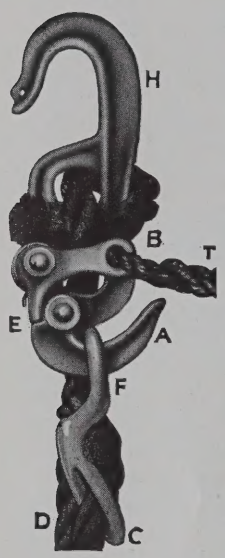


Fig. 819

Louden's Cross Draft Rope Hook

Fig. 819 represents our Cross Draft Rope Hook, which is an important part of the outfit, for upon its *convenience and quickness* of operation considerable depends. The Draft Rope D is secured, as shown, to the *main part of the Hook H,* while the Shift Rope C is fastened to the Hitch F, which in turn is hooked *in the Trip Hook A.* This is held in place and tripped by the Latch E, having an Eye B to which the Trip Cord T is connected. The shift rope is much more *easily and quickly connected to* and tripped from our rope hook than the devices used with other cross draft carriers.

When the hay reaches *the proper height* to pass into the mow, the team is turned back toward the barn and the Hitch F *is readily and quickly* slipped over the Trip Hook A; and when the hay has reached *the point of deposit* in the mow, *a slight* pull on the trip cord will disengage the Latch E, and release the Shift Rope C. In this way the hay *will not be drawn beyond* the proper place and *frequently* the hay will be discharged, the carrier returned and the empty sling or fork brought down to the load by the time *the team gets back to the barn.*

Material Needed for Cross Draft Carrier Outfit

A barn 60 feet long with a 40-foot peak will require the following	Fig.	Pages
1 **Cross Draft Carrier**	817	20
54 feet of Double Bead Steel Track	571	30
7 High-Grade Draft Pulleys	468	48
1 Upright Floor Pulley	364	49
30 Steel Track Hangers	498	30
30 Rafter Brackets	424	30
5 Rafter Pulley Hooks	390	50
1 Floor Pulley Hook	389	50
2 Hoisting Singletrees	344	51
1 Rope Spreader Attachment	345	51

Three slings are generally used, but in place of these, one sling and one grapple fork may be used.

To get correct length of draft rope, multiply distance from floor to peak of barn by 3 and add 20 feet. To get right amount of shift rope multiply length of barn by 2; also distance from floor to peak by 2 and add 20 feet. If extra rope is used out in yard make this the length of longest mow, with half the width of driveway added. If not, add this length to total length of shift rope.

Five-eighths is best for the shift rope. Three-quarters will answer, but is more expensive and being heavier makes the carrier harder to draw back. To get correct length of trip cord, take length of longest mow and add 25 feet. Set post for Pulley L out 10 feet further than half length of barn.

Louden Reversible Sling Carrier — Fig. 315

For Wood Track

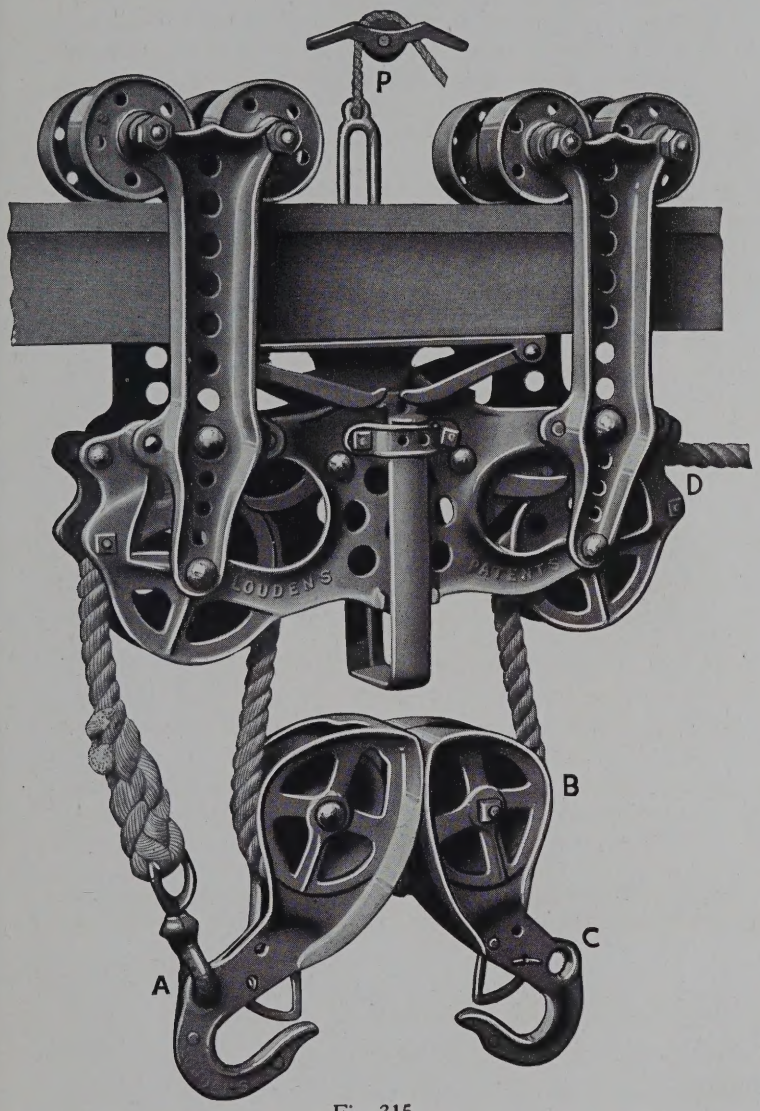


Fig. 315

The Reversible Sling Carrier is a strong, dependable carrier built to operate on 4x4 wood track. In the illustration the carrier is shown with parallel sling pulleys rigged triple draft.

The mechanism of the carrier is very simple and compact. There is a double rope lock, each lock having a long bearing surface on the rope. When the load is elevated, and the sling pulleys strike the trip stirrup, the rope locks go into action holding the load secure. There is no chance for the load to slip back and wear on the rope is reduced to a minimum.

The carrier is fitted with eight track wheels. The wheel arms are heavy and strong and will not spread under the weight of heavy loads.

The trip blocks are adjustable. Two or more trips can be used on the same track and as many of them as desired can be lifted up to allow the carrier to pass through. The frame of the carrier is of the straight reversible (not swivel) type. To reverse the carrier for work in the opposite mow, the draft rope is pulled through the carrier. The end of the rope at D is carried through pulley at end of barn and from there, on down to the horse or team. The other end of the rope is fastened in the eye A, in the sling pulley.

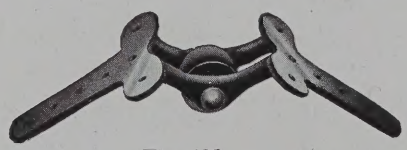


Fig. 435

One Comb Pulley furnished with each Reversible Wood Track Carrier.

Specifications

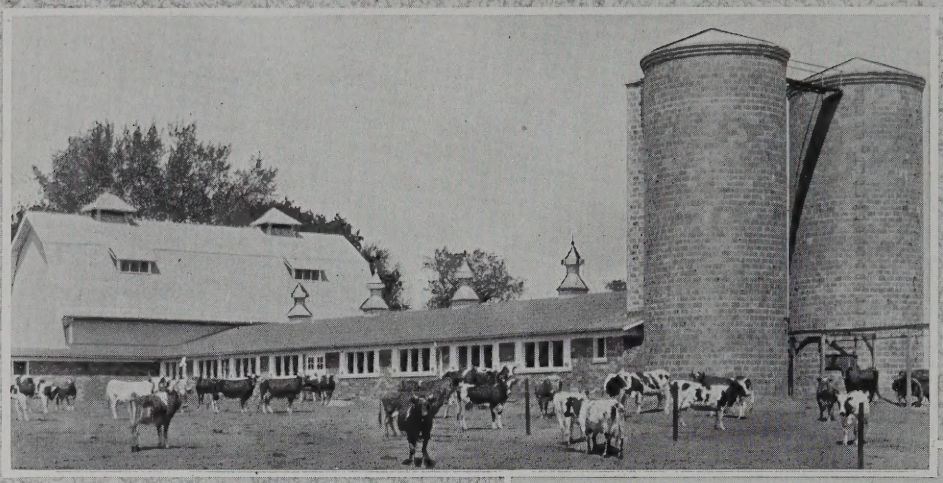
Operates on 4x4 wood track.
For use in any style of barn.
Diameter of rope wheels, 4⅝ inches.
Diameter of track wheels, 3 inches.
Bearing surface on track (distance between front and rear axles), 15 inches.
Carries slings within 19 inches of the track.
Frame of carrier, certified malleable iron.
Rope and track wheels, special quality gray iron.
¾-inch best manilla rope is recommended.
One pair sling pulleys, 1 trip block, 1 rope hook, 1 comb pulley, 1 lift link furnished with carrier.
Weight, 52 pounds.

Fig. 383

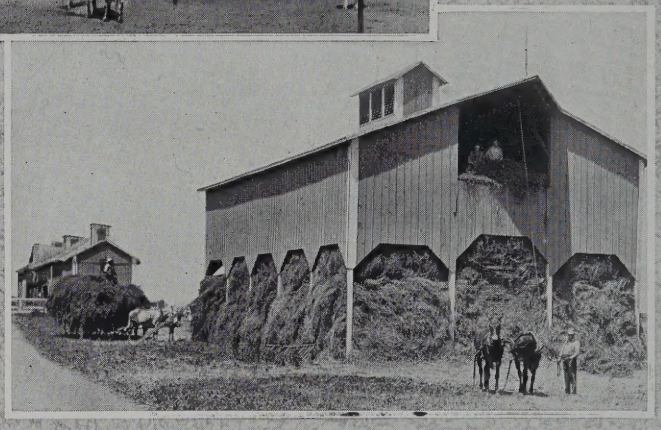
One Rope Hook furnished with each Reversible Wood Track Carrier.

Fig. 1130

One Trip Block furnished with each Reversible Wood Track Carrier.

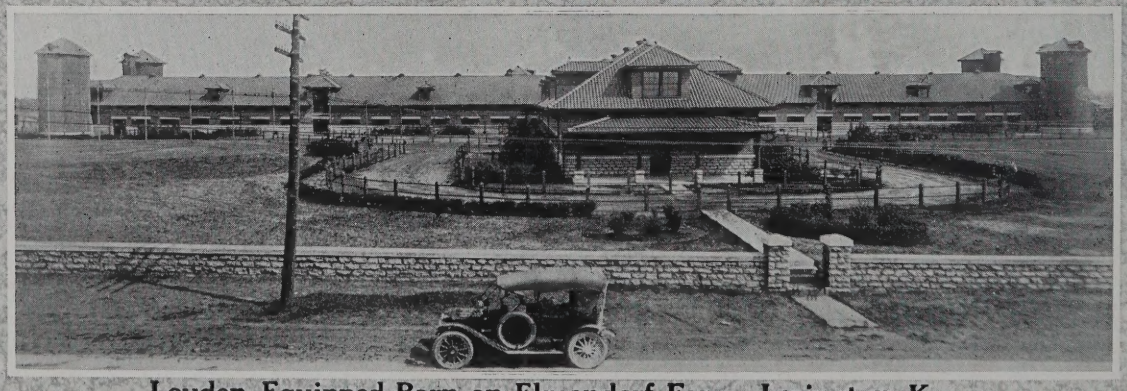


The Dairy Barns of the Iowa State Agricultural College, Ames, Iowa, are Louden Equipped.



Putting Up Alfalfa Hay With Louden Hay Unloading Tools at Farm of J. Crouch & Son, LaFayette, Indiana

Louden Hay Tools Store Away the Hay on Cornfalfa Farms, Waukesha, Wis.



Louden Equipped Barn on Elmendorf Farm, Lexington, Ky.

Louden Round Barn Hay Unloading Outfits

Within recent years there has been much discussion regarding the advantages and disadvantages of round barns. It is not our purpose in this catalog to enter into a discussion of the merits of such buildings. We know that in certain localities round barns have come into favor and one of the problems in connection with these buildings has been the hay unloading outfit. Operating a hay carrier on a straight-away track and operating a hay carrier on a circle track are two entirely different propositions. It was our business to provide successful tools for unloading hay on the circle track. We have perfected hay unloading equipment to meet every condition in the round barn and with which hay may be handled and stored as quickly, as cheaply, as easily, and as safely as in rectangular barns.

Louden Round Barn Hay Carrier — Fig. 1104

For Fork or Slings

Specifications

The only successful hay fork and hay sling carrier made for circle track.

For use in round barns of all diameters and types.

Built to operate on Louden Double Bead steel track only. See page 30.

Diameter of rope wheel in carrier, 6 inches.

Diameter of rope wheels in sling pulley and fork pulley, 4 inches.

Diameter of track wheels on tread, 3 inches.

Track wheels are supported on heavy truck castings attached to main frame of carrier by means of strong swivel connection.

Bearing surface on track (distance between front and rear axles), 16 inches.

Carries slings or fork within 21 inches of the track.

Frame of carrier of certified malleable iron.

Rope and track wheels special quality gray iron.

Note: 5-inch adjustable link track hangers (Fig. 1066, page 211) should always be ordered for hanging circle track in round barns.

7/8-inch best manilla rope is recommended and urged for use with this carrier.

13/16-inch rope may be used but 7/8-inch is better.

Two sling pulleys, 1 release block, 2 end stop blocks, 2 swivel rope hooks are furnished as a part of this complete carrier.

Unless otherwise specified, parallel sling pulleys will always be furnished with this carrier.

If hay fork is to be used with this carrier, fork pulley (Fig. 366 or 1139, page 49) will be furnished instead of sling pulleys.

Weight for sling use, 53 pounds.

Weight for fork use, 41 pounds.

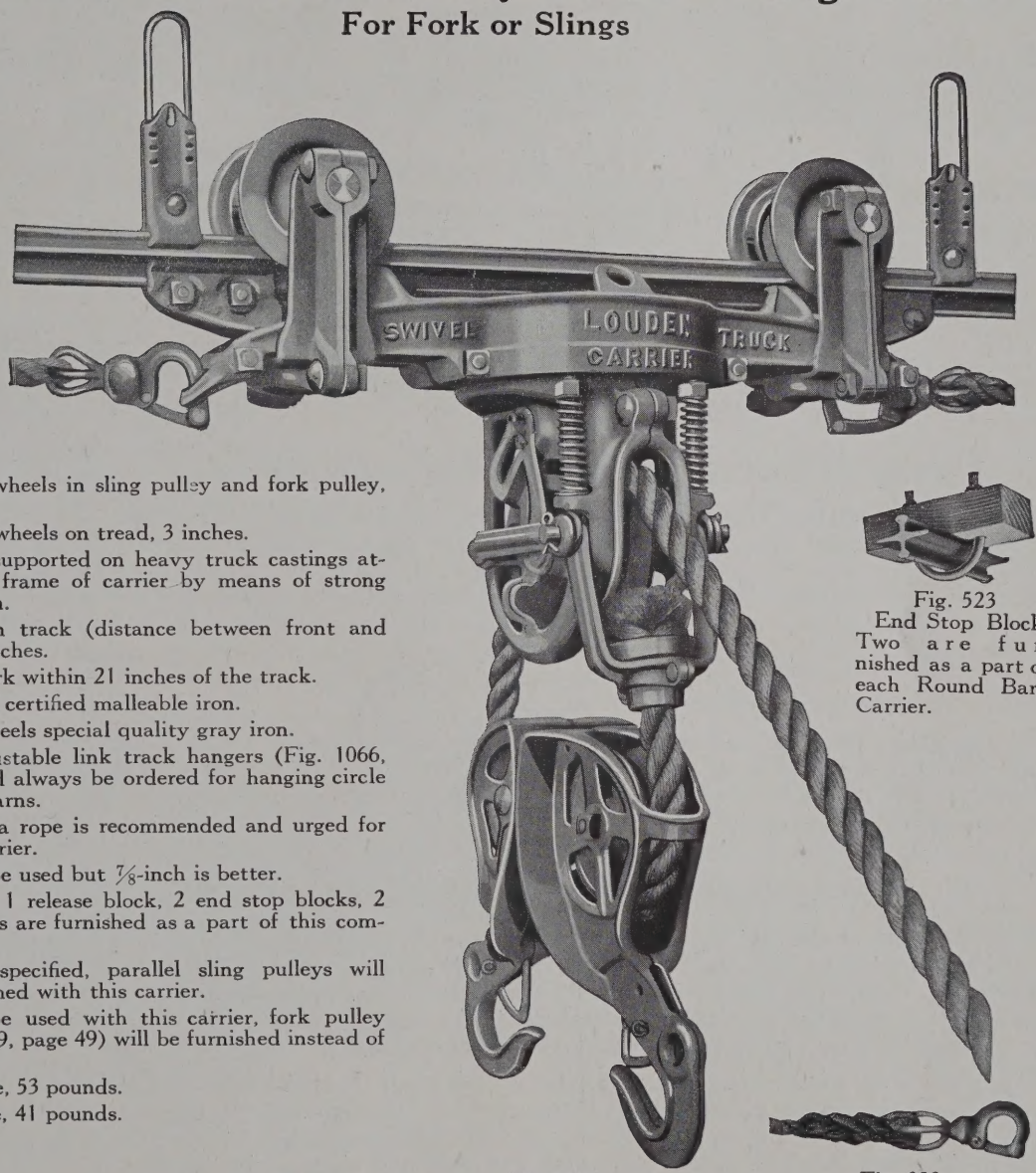
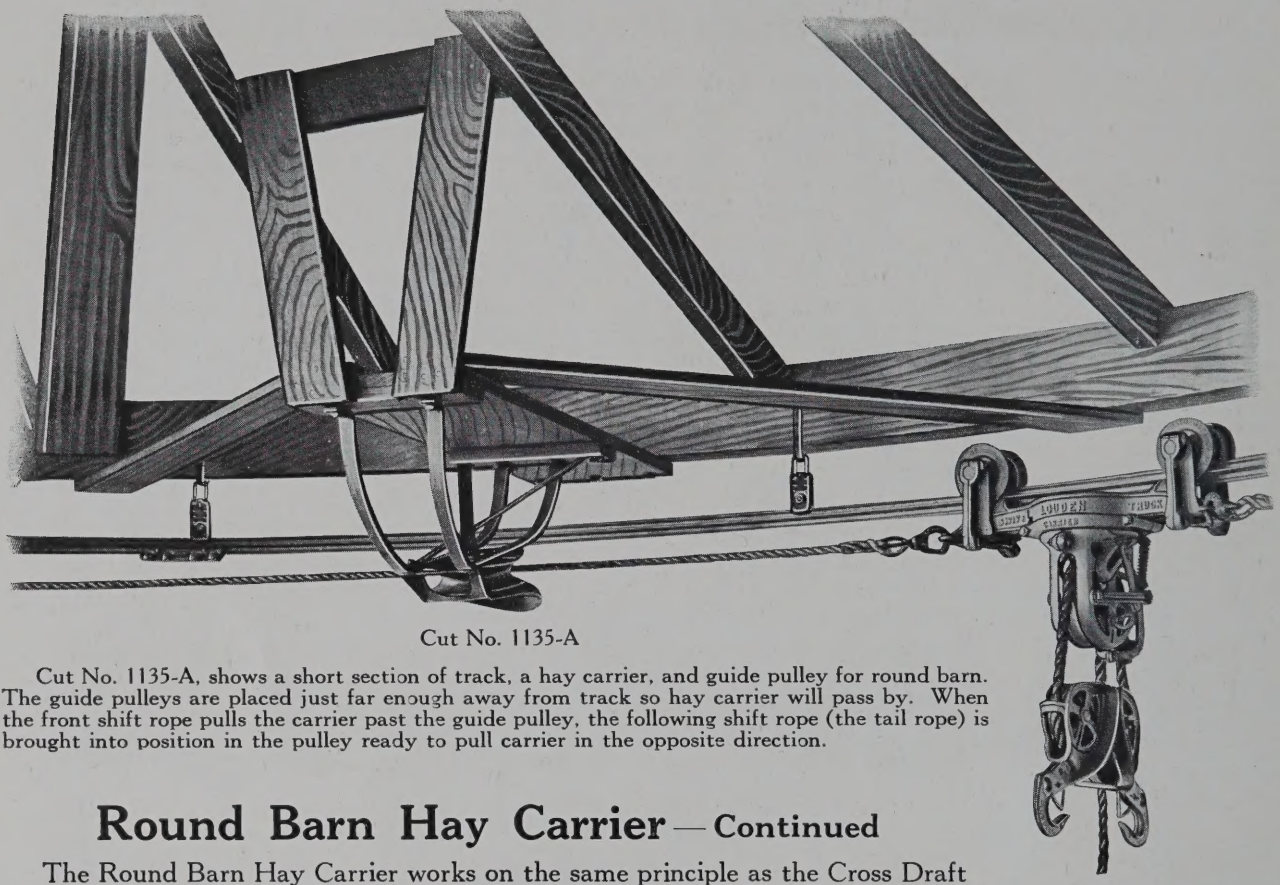


Fig. 1104
Patented July 25, 1911

Fig. 523
End Stop Block. Two are furnished as a part of each Round Barn Carrier.

Fig. 383
Two Rope Hooks furnished with each Round Barn Carrier.

Fig. 1131 Release Block
One is furnished with each Round Barn Carrier.



Cut No. 1135-A

Cut No. 1135-A, shows a short section of track, a hay carrier, and guide pulley for round barn. The guide pulleys are placed just far enough away from track so hay carrier will pass by. When the front shift rope pulls the carrier past the guide pulley, the following shift rope (the tail rope) is brought into position in the pulley ready to pull carrier in the opposite direction.

Round Barn Hay Carrier — Continued

The Round Barn Hay Carrier works on the same principle as the Cross Draft Hay Carrier described on page 20. The main draft rope, instead of running parallel with and along the track, runs at right angles to the track and passes down to the team or hoist in the most direct manner. The draft rope is used solely to elevate the hay and not to pull the carrier along the track. With the draft rope passing directly from the carrier to the team or hoist, only about half as much draft rope is required as with an ordinary hay carrier. This also greatly reduces friction, as the rope does not have to pass over so many pulleys, making it possible to lift heavier loads with less power and with considerably less wear and tear on the rope.

Independent shift ropes are used for pulling the carrier along the track. Good quality 5/8-inch rope is suitable for shift ropes. Two of these ropes are necessary, one end of each rope being attached to opposite sides of the carrier, the other end passing around the guide pulleys and continuing to the hoist or to the team and weight return as the case may be.

An Ideal Outfit for Quick, Dependable Work

Where engine or electric power is at hand, this outfit used in connection with a Louden Triple Drum Power Hoist (see Fig. 1132, page 35) makes the most complete and perfect hay unloading outfit ever installed in any barn. The lower end of the main draft rope is connected to the main drum of the hoist. The lower end of each of the shift ropes is attached to the respective two smaller drums of the hoist. All slack rope is neatly taken up on the drums as the hoist is operated.

The main drum of the hoist is used to elevate the load. It is not necessary to raise the load up to the track unless beams or hay already in the mow interfere. The load can be stopped at any height and can be carried in either direction from the driveway at will. The instant the tension is released on the draft rope the rope lock goes into action and will catch and hold the load. If it is desired to carry the hay to the right, the right-hand drum, and if to the left, the left-hand drum, is brought into action. This pulls the carrier along the track and when the load is dropped the opposite drum is brought into play and the empty carrier is returned to the release block. The entire operation is extremely simple and the hoist can be handled by anyone.

Louden Round Barn Hay Carrier — Continued

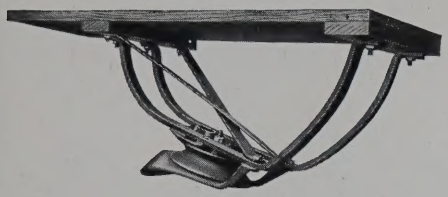


Fig. 1135
Guide Pulley.

Specifications

Length of mounting block, 36 inches.
Width of mounting block, 12 inches.
Depth of mounting block, 12½ inches.
Diameter of pulley, 6½ inches.
Weight, complete, 26½ pounds.

We furnish the track bent to form a circle track of any diameter. Each section of the track is put through a bending machine, and is bent uniform and true, and without kinking the flange or injury to the track. We furnish suitable hangers for supporting the track from rafters or from purlin plate as desired. It should be remembered that the higher up in the building the track is placed the easier it will be to fill the mow full.

Special guide pulleys are used for holding the shift ropes in parallel position with the track. These pulleys are furnished mounted on a board (see Cut 1135A, page 26), and are easy to put in place. The pulley sheave or rope wheel is mounted in a malleable iron casing and supported by steel braces. The pulley is mounted in a slightly tilted position; also, the lower pulley casing extends beyond and slightly upward in front of the rope wheel, thus holding the shift ropes in position. Even should the ropes become very slack they will not fall out of the pulley.

Where a complete circle track is installed, seven or eight or more guide pulleys should be used. The purpose of the guide pulleys is to carry the shift rope as nearly parallel with the track as possible. The number of pulleys necessary is determined by the diameter of the track. Always enough pulleys should be used so the carrier will be pulled straight ahead, not sideways.

Where there is a silo in the center of the building, it would be necessary to detach one shift rope from the hoist and carry it around the silo when changing to work the carrier in the opposite mow. This change is easily made, requiring only two or three minutes' time.

Can Be Used With Horse Power If Desired

This rig can be used with horse power instead of the hoist and when so used the arrangement of ropes would be only slightly changed. Instead of one shift rope passing around the complete circle, as shown with hoist, both shift ropes would pass over pulleys and be arranged to correspond with the arrangement in rectangular barns. (See Cut 822, page 21.)

This special unloading outfit for round barns will do satisfactory work in barns of all sizes. Hay forks or hay slings can be used and the rig will handle heavy loads of all kinds of hay.

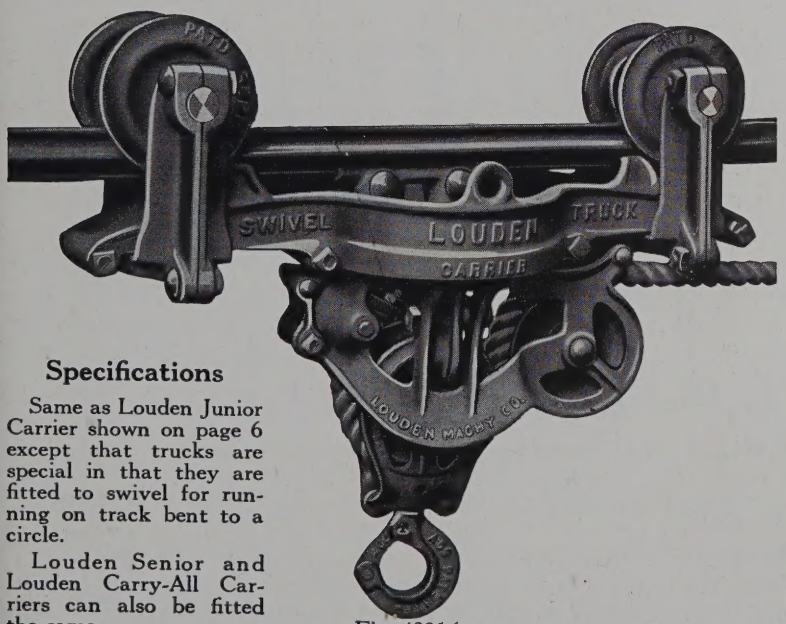


Fig. 430½

Specifications

Same as Louden Junior Carrier shown on page 6 except that trucks are special in that they are fitted to swivel for running on track bent to a circle.

Louden Senior and Louden Carry-All Carriers can also be fitted the same.

Junior Round Barn Fork Carrier—Fig. 430½

Where it is desired to use an ordinary type of fork hay carrier in a round barn, we recommend the Junior Fork Carrier, same as described on page 6, except that it is fitted with special extra heavy swivel trucks. The swivel trucks permit the track wheels to adjust themselves to the bend of the track so there is no excessive wear and no binding on the track. Aside from the swivel trucks, this carrier is exactly the same as the Junior Carrier, Fig. 430, described on page 6, and will give complete satisfaction wherever used.

The Louden Senior Fork Carrier and the Louden Carry-All Sling Carrier shown on preceding pages can also be equipped to operate in round barns in the same manner as described above.

Louden Junior Hay Fork Carrier for Cable Track —Fig. 621

Specifications

For stacking hay in the field.
Built to operate on ½-inch cable.
Diameter of rope wheels, 4 inches.
Diameter of track wheels on tread, 3¼ inches.
Bearing surface on track (distance between front and rear axles), 10 inches.
Carries fork within 13 inches of the track.
Frame of carrier of certified malleable iron.
Rope and track wheels special quality gray iron.
¾-inch best manilla rope is recommended.
13/16 or ⅞-inch rope may be used.
Fitted for wire draft rope on special order.
One fork pulley, 1 trip block, 1 rope swivel furnished as a part of each complete carrier.
Weight, 24 pounds.

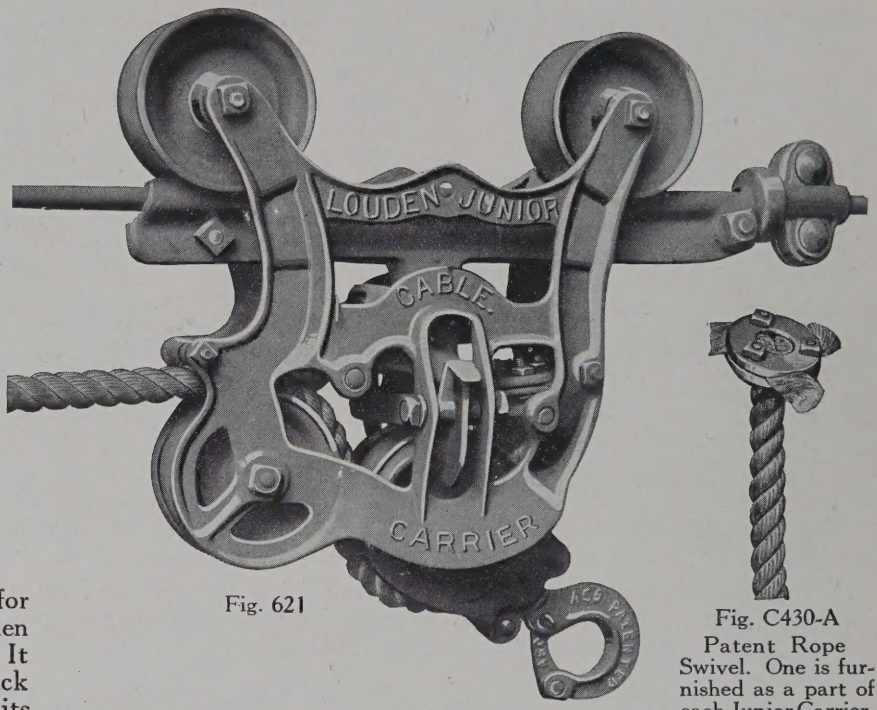
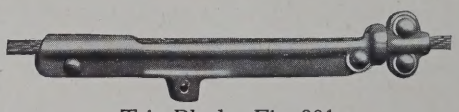


Fig. 621

Fig. C430-A Patent Rope Swivel. One is furnished as a part of each Junior Carrier.



Trip Block—Fig. 801
One is furnished with each Cable Carrier.

This carrier was designed for use in connection with the Louden Cable Ricker for stacking hay. It operates on a wire cable track (½-inch diameter) and does its work as nearly perfect as can be. It is built along the same general lines as the Louden Junior Carrier for steel track. It is compact and stout, its working parts are extremely simple and it never fails to work right.

The poles at the end and the cable track above also act as guides for building the stack. Stacks of any size up to 60 feet in length can be built with the cable ricker. We furnish the cable in any lengths desired. The cable should be allowed to extend to the ground, on the outside of the poles, at each end, thus forming guys. Forty feet of cable should be allowed outside of the poles at each end. Where 30-foot poles are used and a 50-foot stack is to be built, 140 feet of cable would be required. This allows room to drive the load of hay inside the poles and thus secure a straight lift up to the carrier. Where poles longer than 30 feet are used add 2 feet of cable for each added foot of pole length.

We do not furnish poles as they cannot conveniently be shipped by local freight and it is much more satisfactory all around to procure them locally. Poles should be 5 to 6 inches in diameter at the top and 30 feet or more in length.

This cable ricker is easy to set up, easy to move from place to place, and when not in use the metal parts can be stored in small space. With ordinary care the outfit will last many years — it embodies the same high quality of materials used throughout all Louden equipment.

Louden Cable Ricker Outfit

For Stack 50 Feet Long

	Fig.	Pages
1 Louden Junior Cable Carrier,	621	Shown above
1 Louden 6-Tine Balance Grapple Fork	351	36
140 feet ½-inch Galvanized Steel Strand	418	29
2 High-Grade Draft Pulleys	468	48
2 Cable Loop Clamps	337	29
4 Cable Stop Clamps	337½	29

170 feet ¾-inch manilla draft rope and 90 feet ⅜-inch trip rope would be required with this outfit. We do not furnish poles.

Louden Cable Ricker Outfit — Continued

Galvanized Steel Strand, ½-in. Diameter

Fig. 418 is the Galvanized Steel Strand used for the carrier track of the Cable Ricker Outfit shown on this and preceding pages. This strand is furnished in the one size only, having an outside diameter of ½ inch and made up out of 7 heavy No. 8 wires. The strand has a breaking strain estimated at about 4 tons. Hence it is amply strong to withstand any load that might be lifted on a Stacker Outfit. It is extremely durable and is pliable enough to handle easily. In addition, it is economical in cost. Information relative to the number of feet required for an outfit is given on page 28. Any additional information will be furnished on request. Weight per 100 feet, 50 pounds.

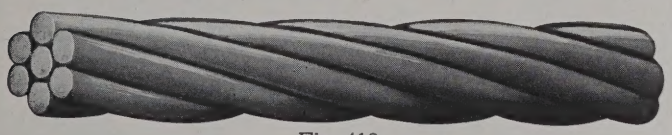


Fig. 418

Cable Clamps for Ricker Outfit

Fig. 337 is the Louden Wire Cable Loop Clamp used for making a loop at the ends of the cable. Two of these clamps should be used with each stacker outfit. Weight each, 1¼ pounds.

Fig. 337½ illustrates the Louden Wire Cable Stop Clamp. This clamp is placed on the wire cable track at either side of the poles at the end of the stack to hold the upper ends of the poles securely in position. Four stop clamps should be used with each stacker outfit. Weight each, 1 pound.

Both of the above clamps are made out of certified malleable iron—strong, tough, exceedingly durable—and are held together with two good heavy bolts, which grip the cable firmly so that they will not slip.

Fig. 337

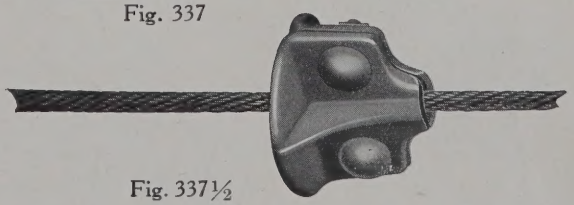


Fig. 337½

Louden Steel Track and Track Fixtures

For Hay Carriers

Double Bead Steel Track—Fig. 571

Fig. 571 shows a section of Louden Double Bead Steel Track. This track is a special quality high carbon steel. It is 2 inches wide, 1 7/16 inches high and, properly supported every 24 inches, it will safely carry a load of 3000 pounds. Weight, per foot, 2 pounds. Furnished in even lengths from 6 to 16 feet.

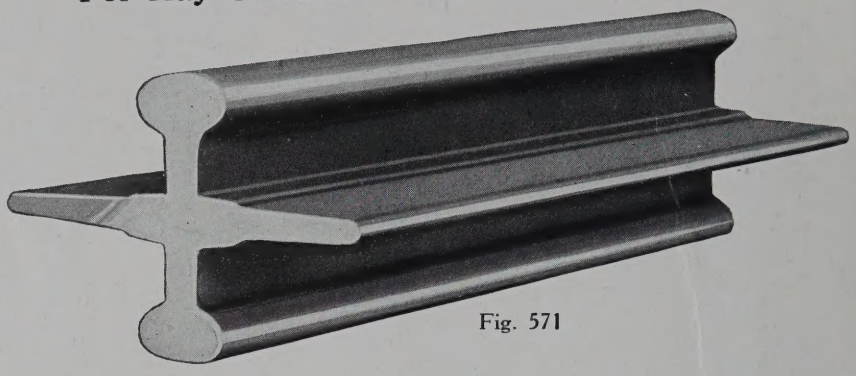


Fig. 571

Splice Clamp for Double Bead Steel — Fig. 550

Fig. 550 is the Splice Clamp for Louden Double Bead Steel Track. It is of certified malleable iron and is held firmly in place on the under side of the track by six bolts. It is easily attached, holds the flanges of the track level and makes it just as strong at the joint as at any other point. Care should be used to see

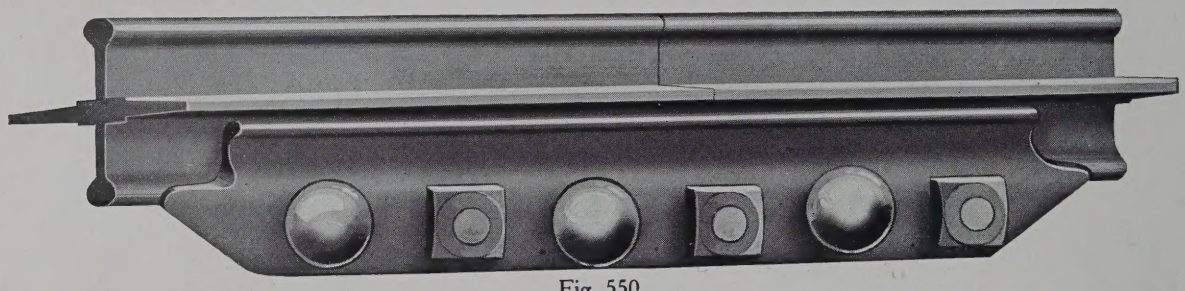


Fig. 550

that the nuts on the six bolts are drawn tight. After the nuts have apparently been made tight, the bolts should be set by striking them a heavy blow on the head with a hammer. After this is done it will be found the nuts can be drawn still tighter, and the clamps will hold securely.

Enough clamps for the track are furnished with every shipment. Weight, each, 1 1/4 pounds.

Louden Handy Rafter Brackets

Fig. 1397. Rafter Bracket made of the very best quality certified malleable iron. Weight per dozen, 4 1/2 pounds.

Fig. 424. Heavy Pressed Steel Rafter Bracket. Durable and strong. Weight per dozen, 3 3/4 pounds.

Either of the above brackets is for use where the track is supported from joists or beams running at right angles to the track.

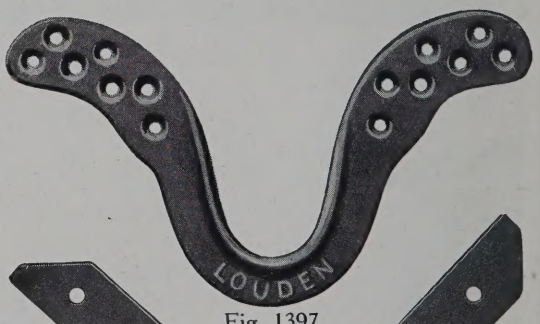


Fig. 1397

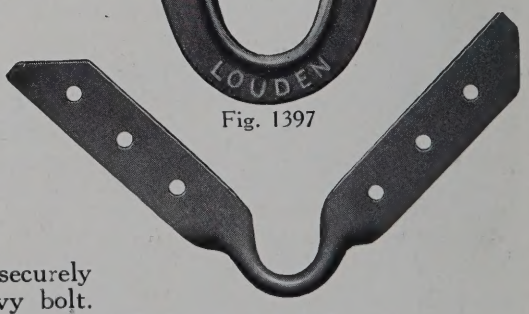


Fig. 424

Fig. 498

Louden Track Hanger

Fig. 498. Louden Standard Track Hanger for Double Bead Steel Track. Made of certified malleable iron, in two parts, securely clamped together by short heavy bolt. Weight per dozen, 6 pounds.

Track and Track Fixtures — Continued

Ridgepole Brackets

Fig. 465

Fig. 465 is our Ridge Pole Bracket which is used when the track is hung parallel to a joist or other 2-inch timber. This bracket is formed out of pressed steel and is so designed that it slips over the supporting timber and is nailed from both sides, the holes being staggered so that the nails will not come opposite each other and split the timber. Weight, per dozen, 3 pounds.

Fig. 1308 is our Heavy Pressed Steel Ridgepole Bracket specially designed in two sizes for supporting track from either a 4 or 6-inch timber. The stirrup is so constructed that it perfectly fits the curve at the top of the Track Hanger. This insures a good fit with little or no play. Bracket is nailed from both sides. Weight per dozen, 4-inch size, 6 pounds; weight per dozen, 6-inch size, 6¼ pounds.

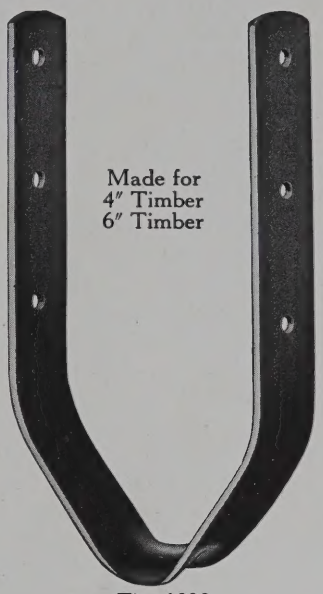


Fig. 1308

Side Beam and Rafter Brackets

Fig. 725 is our Side Beam Bracket for hanging track to a timber running parallel with the track. Where the timbers do not exceed 6 inches in thickness we always recommend bracket 1308 shown above, for this purpose. But where it is necessary to fasten to larger timbers or timbers of irregular shape, Fig. 725 may be used. It is also a handy bracket for putting up curved pieces of track. Quite often the curved portion does not come under the center of any beam above. However, inasmuch as Fig. 725 fastens onto the side of the beam, the track can be suspended without building to the beam or any additional false work being necessary. Weight, per dozen, 6 pounds.

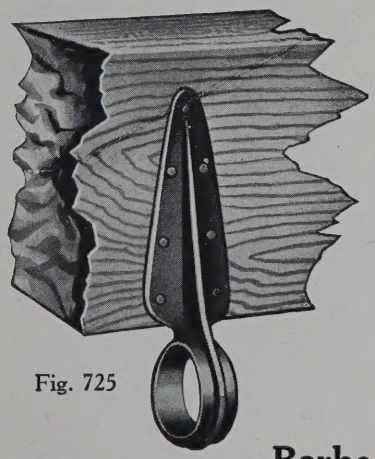


Fig. 725

Fig. 675. Malleable Side Rafter Bracket, used for hanging track to rafters on one side of the roof. Weight per dozen, 5¼ pounds.

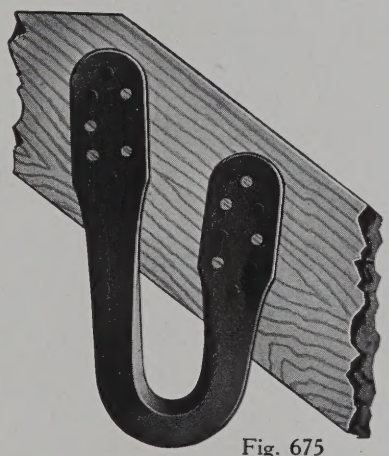


Fig. 675

Barbed Chisel-Point Nail

Fig. 373

Fig. 373. Barbed Chisel-Point Steel Nail for putting up rafter or ridgepole brackets. Cut shows actual size.

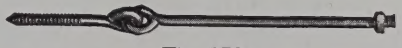


Fig. 372

Hang Hooks For Wood Track

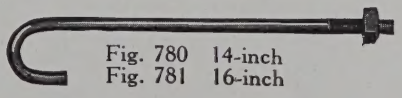


Fig. 780 14-inch
Fig. 781 16-inch

Fig. 780. Straight Hang Hook for wood track. Made of ½-inch steel rod and furnished in two lengths. Weight, 14-inch size, per dozen, 9 pounds. Weight, 16-inch size, per dozen, 12 pounds.

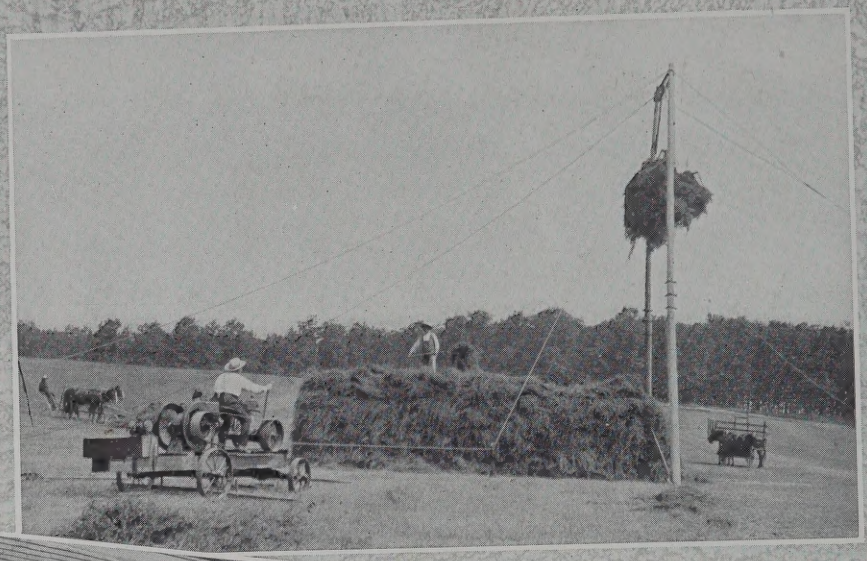
Fig. 372. Jointed Hang Hook for wood track. Made of ½-inch steel rod. Total length, 14 inches. Weight, per dozen, 12 pounds.

Louden Carriers for Other Makes of Tracks

We do not furnish these tracks, but we fit any Louden Fork or Sling Carrier to run on them. In ordering carrier, state the number and size of your track.

No. 3 is 2 inches wide; No. 5, 2½, and No. 7, 2¼ inches wide.

No. 3 No. 5 No. 7



Using the Power Hoist in the Field

THE LOUDE
POWER HOIS

In the Field and
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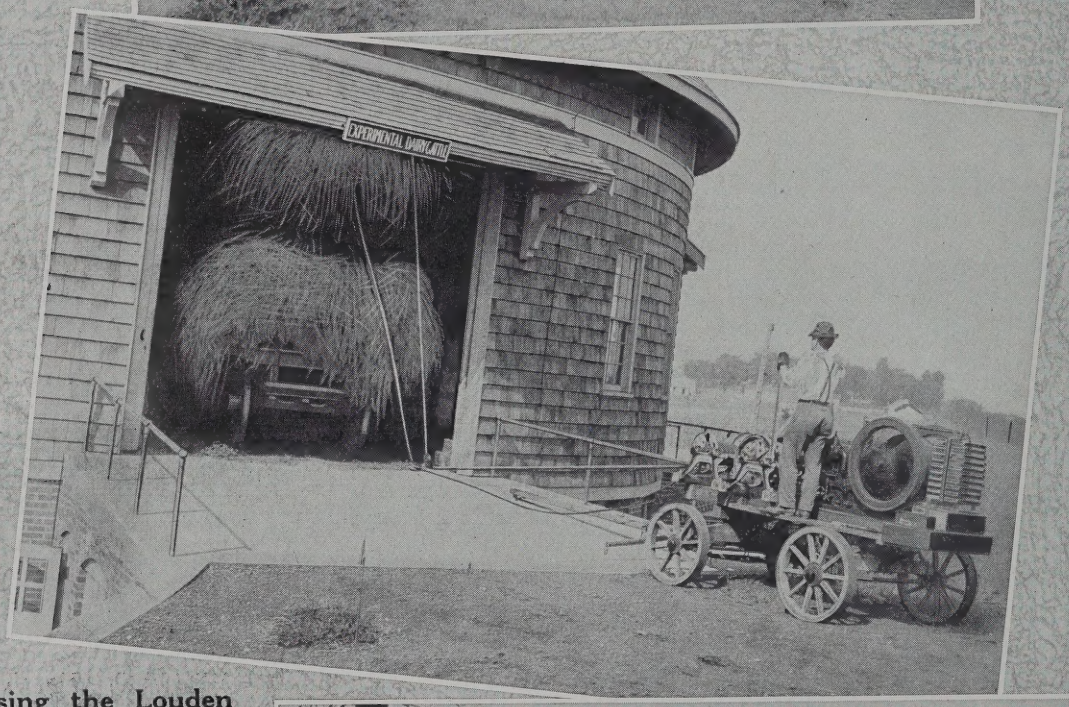
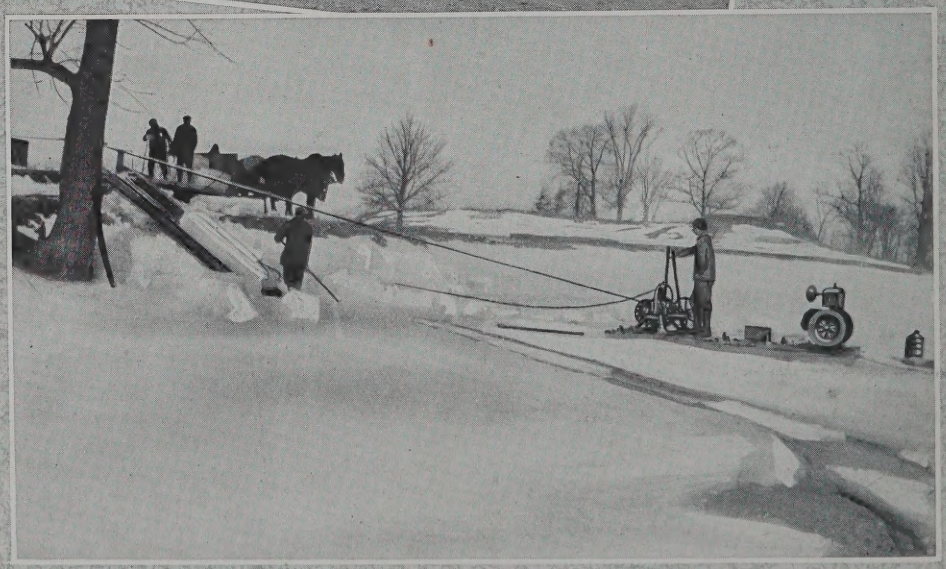
Needed, the Lou
Power Hoi
"Makes Good"

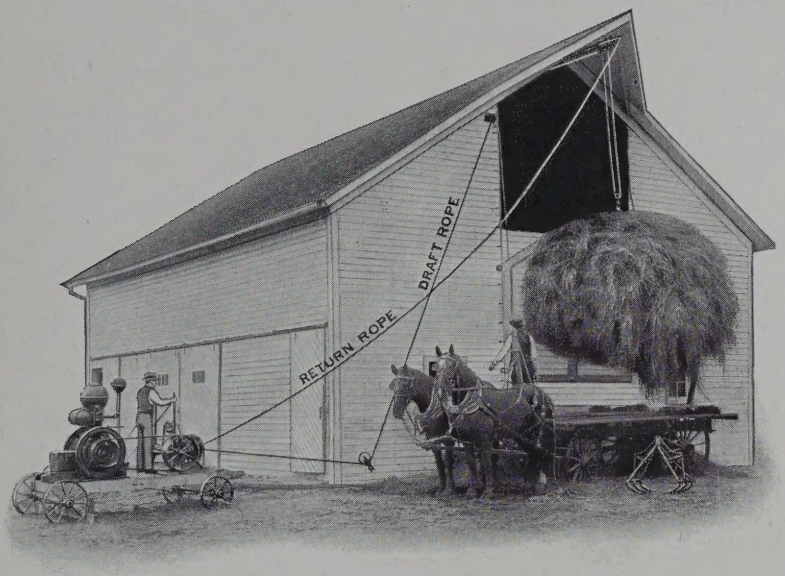


Using the Louden Power Hoist at the University of Illinois



Putting Up Ice With the Louden Power Hoist

Lifting Hay With Power



Above illustration shows Louden Single Drum Power Hoist and four horse power gasoline engine lifting 1,000 pounds of hay. The top of the load has been removed with hay fork; a sling is being used for the last load. Note how completely it cleans up the rack.

There is a great need for time and labor saving equipment in hay harvest, as the season is short and the crop is valuable. A delay of a few hours may mean a serious loss.

Louden Power Hoists are designed for quick, efficient work. They are so simple that anyone may quickly understand and operate them, and the great numbers in which they are manufactured enable us to put them on the market at a price within reach of every farmer.

The hoist may be used with any kind of power—steam, gasoline or electric. Under ordinary conditions three or four H. P. is sufficient, though five or six H. P. is better. Engine and hoist may be located in any convenient place.

The operation is extremely simple. Five minutes' practice will put operator in perfect control of hoist and its load. Its action is positive and it always responds to the levers.

The clutch on Louden Power Hoists is simple, powerful, and dependable. The contact blocks are of hard maple and in operation are forced into the cone-shaped metal drive. They are accessible by removing a single pin, and are mounted on eccentric benches, making them adjustable to take up the wear. One set of blocks will last several seasons and they can be replaced for a few cents in ten minutes' time.

Does Work of Team — Stores Crop Quicker

When help is scarce and high priced, and all the horses are needed in the field, the Power Hoist comes to the rescue and does the work of both a team and man. Not only that, but it does the same work in about one-fourth the time.

Reduce these facts to figures and you will have the proof of our claim that a Power Hoist will easily pay for itself in a single season.

There is nothing complicated about it—no delicate mechanism. It is just a plain, common sense, sturdy machine built to handle big loads easily and to save time and labor in hay harvest.

There is as much difference between unloading hay with a hoist and with horse power as there is between handling it with horse power and with a pitchfork. Try one out this season.

How long a Power Hoist will last is still to be proved, for the first hoists placed on the market by The Louden Machinery Company, over fifteen years ago, though of not as improved design as the later models, are still giving efficient and satisfactory service.

The convenience of the hoist is increased for general farm purposes by mounting it on the same truck with a portable engine. In this manner it is easily moved from place to place and will be handy for practically all of the heavy lifting about the farm and elsewhere, such as removing wagon boxes and hay racks from wagons, cleaning and digging wells, elevating roots from root cellars, and silage from underground silos. It can also be used successfully for storing ice and for elevating grain with a dump box.

While the Louden Power Hoist is designed primarily for unloading hay, it has been found exceedingly valuable for many other uses. Here is what a builder writes: "We used the Louden Hoist in building a concrete stack at the plant of the Iowa Malleable Iron Co. It was most satisfactory and proved a great saving in time and effort. It handled the cement in 800-pound lots as fast as the power mixers were able to deliver it. I am confident from the design and behavior of the hoist that it will handle a ton."

Louden Single Drum Power Hoist—Fig. 965

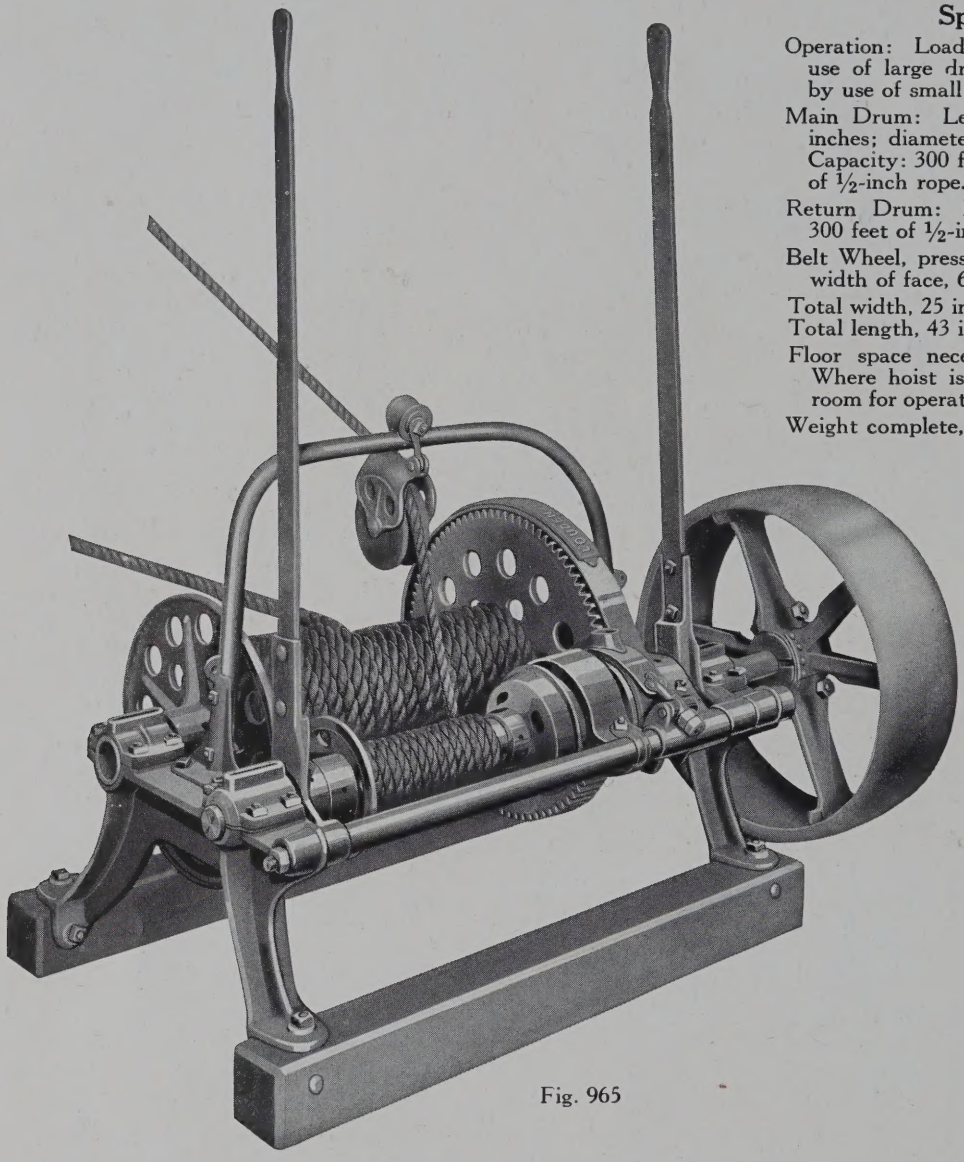


Fig. 965

Specifications

Operation: Load carried in one direction by use of large drum. Empty carrier returned by use of small drum.

Main Drum: Length, 20 inches; diameter, 6 inches; diameter of drum flanges, 15 inches. Capacity: 300 feet of ¾-inch rope or 400 feet of ½-inch rope.

Return Drum: Length, 11 inches; capacity, 300 feet of ½-inch rope.

Belt Wheel, pressed steel; diameter, 20 inches; width of face, 6 inches.

Total width, 25 inches.

Total length, 43 inches.

Floor space necessary, 25x36 inches. (Note: Where hoist is mounted on truck, sufficient room for operator to stand should be allowed.)

Weight complete, ready to ship, 345 pounds.

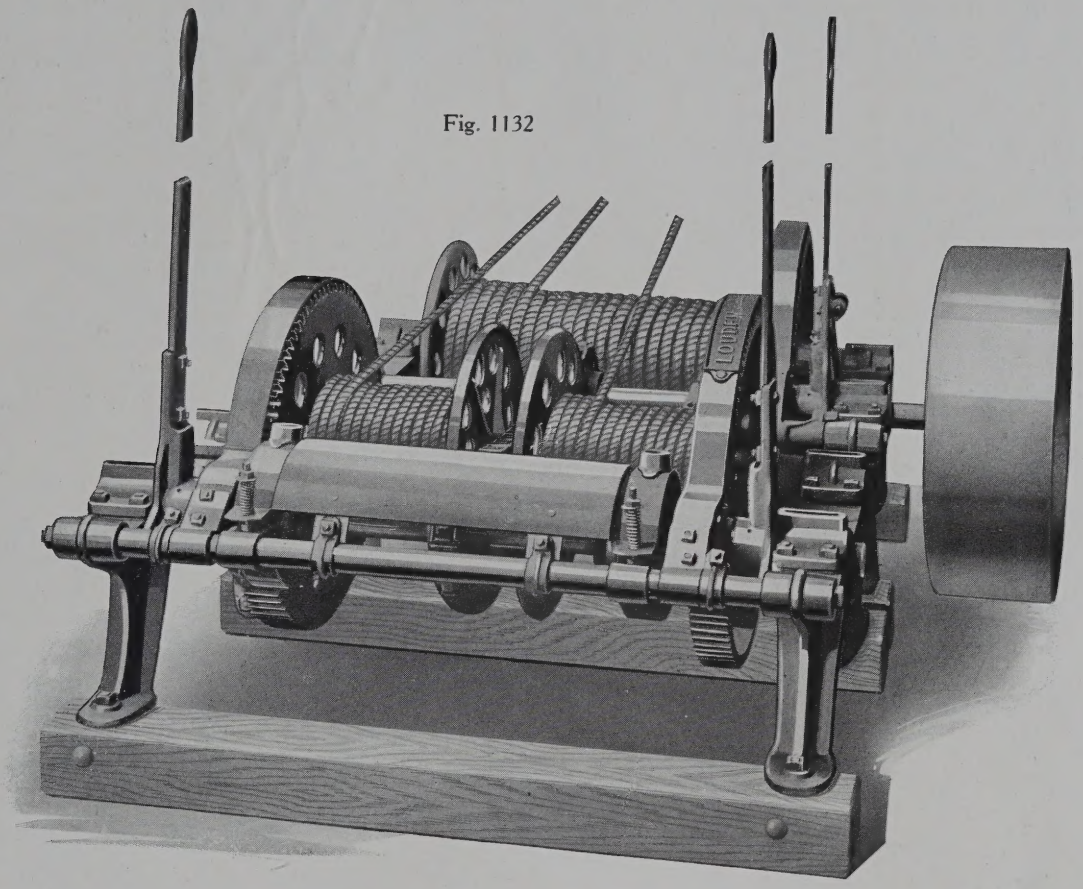
When the load is to be carried in one direction only, as in an end hoist barn, the Single Drum Power Hoist is used. This hoist has one large drum for elevating the load and carrying it into the mow, and a smaller drum for returning the empty carrier. It is equipped with an adjustable friction clutch, the most dependable and economical control ever devised. By *pulling* the right hand lever the main drum is thrown into action, carrying the load up into the mow. By *pulling* the left hand lever the return drum is thrown into action to return the empty carrier. By *pushing* slightly on the right hand lever the brake is applied. When released both levers automatically assume the neutral position.

The hoist is fitted with a band brake. There is but little use for this brake under ordinary conditions, but in case of emergency a very light pressure on the brake lever will enable the operator to hold the load suspended at any height or to ease it back to the wagon if desired.

Make hay while the sun shines! There is no time lost, no waiting, no changing of team from wagon to draft rope. All that is necessary is to set the fork in the load or if slings are used, to attach the sling pulleys—then pull the right lever slightly—into the mow goes the load—when it is tripped, pull the left lever and back comes the carrier. Takes just a minute and the hoist does all the work.

Louden Triple Drum Power Hoist—Fig. 1132

Fig. 1132



Specifications

Operation: Load hoisted to desired height by use of large drum. Load carried along track to the right by right-hand small drum, or to the left by left-hand small drum.
Main Drum: Length, 20 inches; diameter, 6 inches; diameter of drum flanges, 15 inches; capacity, 300 feet of ¾-inch rope or 400 feet of ½-inch rope.
Small Drums (each): Length, 8 inches; capacity, 175 feet of ½-inch rope.
Belt Wheel, pressed steel; diameter, 20 inches; width of face 6 inches.
Total width, 48 inches.
Total length, 65 inches.
Floor space neccssary for base, 38x65 inches. (Note: This is actual base. Where hoist is mounted on truck, sufficient room for operator to stand should be allowed.)
Weight complete, 700 pounds.

In a center drive barn, where the hay is to be stored in mows on both sides of the driveway, or in a round barn, the Triple Drum Power Hoist should be used. With this hoist and a Cross Draft Sling Carrier hay can be picked up and carried into either mow at the will of the operator. One load can be put in the right hand mow and the next in the left hand mow, if desired, without the changing of ropes or pulleys.

It is not necessary to carry the load clear up to the track. Unless cross timbers interfere, the hay may be run back into the mow at any height.

The Louden Triple Drum Power Hoist has three complete hoisting drums mounted on the same frame. They operate by friction clutch. Pull the levers to you and they force the clutch into contact; release them and the power is released automatically; push them from you and the brakes are applied.

The Power Hoist can be used successfully with any kind of a Hay Carrier. We shall be glad to send you specifications and prices for a complete power outfit for your barn, for either fork or sling use. Tell us whether you take up hay from the end of the barn, or from a center driveway, and mention the carrier and sling (or fork) you prefer. You'll be surprised to learn how little a Power Hoist will add to the cost of your hay unloading outfit, as compared with the saving it effects.

Louden Balance Grapple Hay Forks

Louden Balance Grapple Hay Forks are in use in all parts of the United States—Canada and throughout the world — in all kinds of hay. Wherever the fork is known customers are enthusiastic in saying it cannot be beaten in any respect by any hay fork that has ever been made.

The arched support is covered by patents and is the greatest improvement ever made in grapple forks. It secures a perfect balance, by means of which the fork can be either opened or closed with the slightest touch. The fork is neat in design, perfectly balanced in all of its parts and adequately strong for any work it will ever be called upon to do.

The material used in the construction of the fork is a special high-grade steel. The steel is very stiff with just enough spring to it so it will not bend or break under the heaviest work. The tines of the cheaper constructed forks soon become bent and twisted out of shape and the fork is made useless. Be sure to get a Louden Fork. They are built of special steel that will hold its shape under the heaviest work.

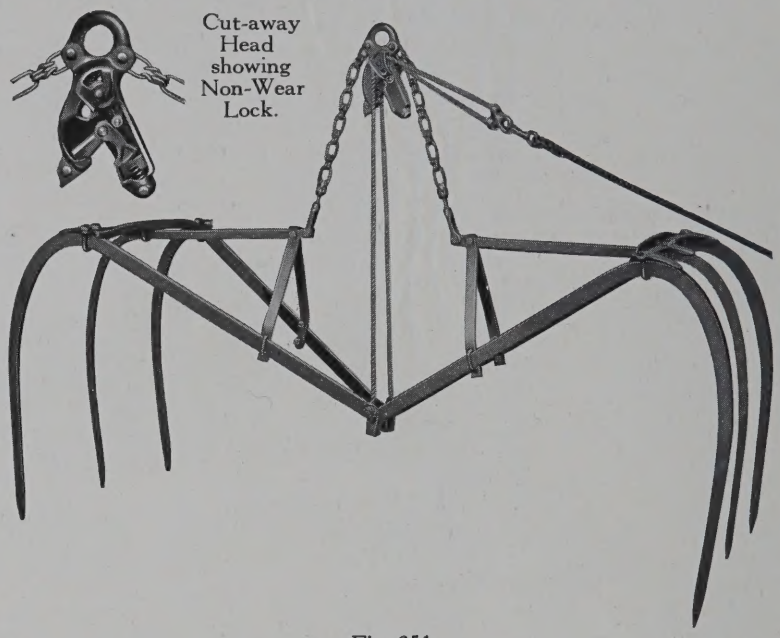


Fig. 351
Louden Standard 6-Tine Balance Grapple, Automatically Closing Fork.

Specifications

Fork spreads when open, 58 inches.
Outside tine width, 19 inches.
Tines go down into hay 24 inches.
Fork comes back to wagon closed.
Fork is made out of special steel.
Certified malleable iron castings.
Fork complete includes double rope threaded as shown with connection for trip rope snap.
Weight, complete, 46 pounds.

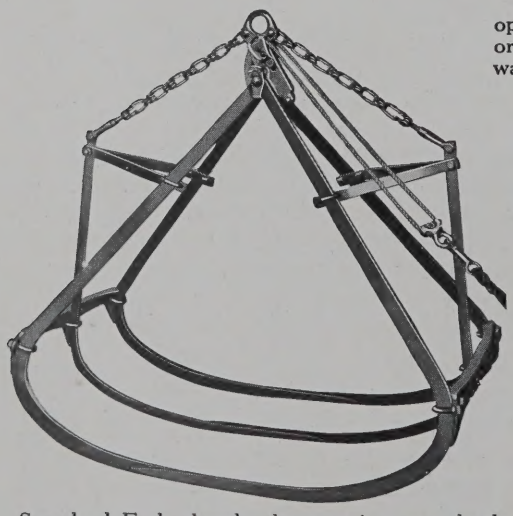
The Louden Balance Grapple Fork is designed so that the natural pull on the trip cord closes the fork and locks the head in place so that when it comes back down out of the mow to the wagon it is all ready to spread out and take up another load immediately without the additional work of setting the head.

However should it be desired to have the fork come back to the wagon open it may be done by disconnecting the ropes at the hinge and sticking their ends into the rope hole in the head and tying their ends together.

Thus the Louden Grapple Fork is built to come down out of the mow either open or closed. It is the only Fork made that has this double feature. Unless ordered otherwise the Fork goes out regularly connected to return to the wagon closed.

For Timothy Hay

In long timothy hay, any kind of hay fork can be used with fairly good satisfaction. Much of the success in using a harpoon fork depends on the manner in which the hay is loaded on the wagon. If the man on the wagon knows how and has time to load carefully, fairly good results are secured with a harpoon fork. The best results, however, are always secured with the Louden Grapple Fork. No difference how the hay is loaded on the wagon, the Louden Balance Grapple Fork handles it right. When using a harpoon fork, a lot of hay will always shake loose and fall back on the wagon or on the barn floor. All of this litter and extra work is saved by using a Louden Balance Grapple Fork.



Standard Fork closed—the way it comes back out of mow to the wagon.

For Clover Hay

It is annoying and expensive to try to use a harpoon fork for unloading clover hay, and especially so if the hay has become a little dry. As a rule, the fork will pull up through the hay and lift only a very small load. It takes about three

Louden Balance Grapple Hay Forks — Continued

times as long and requires about three times as much hard work to unload a load of clover hay with a harpoon fork as it does with a Louden Balance Grapple Fork. The fork puts its arms, so to speak, around a great bunch of hay and binds it in nature's own way, just as you would pick it up and hold it in your arms. Working in clover hay, the grapple fork will pay for itself in two days' use and will save a lot of hard work.

For Alfalfa Hay

The Louden Grapple Fork will make equally as good a showing in one kind of hay as it does in another. It handles them all as nearly the right way as any fork could possibly do. The Louden Grapple Fork, however, is exceptionally strong in alfalfa. It has an affinity for alfalfa hay. It will take alfalfa hay from the wagon and carry it into the hay mow or up on to the stack in such big bunches that users are astonished and delighted with its efficiency. Another thing, when the fork lets go of the hay it spreads it out and makes it easy to mow away. It drops every straw and no hay is left clinging to the tines and bothering in that respect.

Fig. 686
Louden Extra Large 6-Tine Balance Grapple Fork.

Specifications

Spreads when open, 79 inches; width between outside tines 25 inches. Tines go down into hay 24 inches.
Fork is built heavier throughout to handle extremely large loads. Is made out of special steel and certified malleable iron. Includes double rope threaded as shown, also connection for attaching trip cord.
While fitted to come back to wagon closed, can be changed to come back open if desired. Weight, 66 pounds.

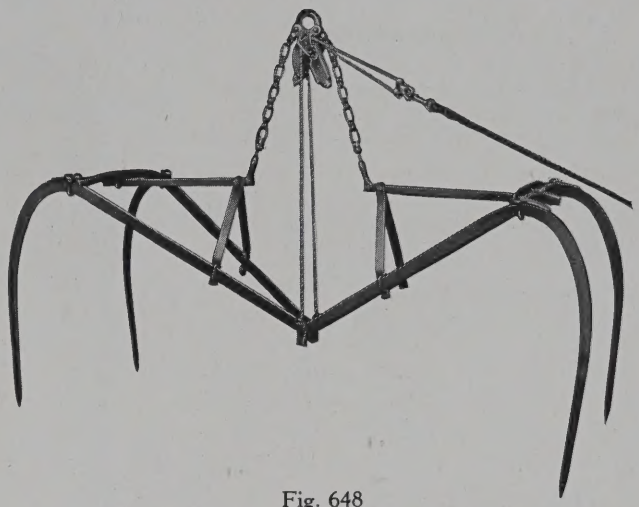


Fig. 648
Louden 4-Tine Balance Grapple, Automatically Closing Fork

Specifications

Spreads when open, 58 inches. Width between tines, 19 inches.
Tines go into hay 24 inches. Fork is very strong and durable.
Fork made out of special steel and certified malleable iron.
Fork complete includes double rope threaded as shown.
Also connection for trip rope to snap into. Weight, 41 pounds.
Fork is regularly fitted to come back out of mow closed with head locked in place but may be changed in a few seconds' time to come down open if desired.

For Other Kinds of Hay

The Louden Balance Grapple Fork will handle any kind of hay. In the Far North where the Canada field pea flourishes and in the Far South where the cow pea blooms, this fork is handling the work successfully and growing in popularity each year. It will successfully handle threshed straw. Many Michigan customers are using it for putting their bean crops into sheds preparatory to threshing. Where there is hay or forage of any kind to handle, the Louden Balance Grapple Fork will do it successfully.

At first thought it might seem a fork of this size would be hard to handle. On the contrary, it is easy to handle. When the hay carrier is returned to the trip block and the fork pulley is released, the fork will settle down to the wagon without any pulling or hauling. The fork goes down closed all ready for the next load. The man on the load can grasp the fork as it comes down, swing it into position and set it into the hay, just as easily and quickly as a harpoon fork.

The fork is furnished in three sizes. The Standard 6-tine size is the one most largely used. The 4-tine fork is exactly the same as the 6-tine fork except the center tine is left out on each side. The extra large 6-tine fork is built heavier throughout than the other forks. The Standard size 6-tine and 4-tine forks are large enough for practical use under average conditions. The extra large fork is desirable for clover and alfalfa where extremely heavy loads are to be handled.

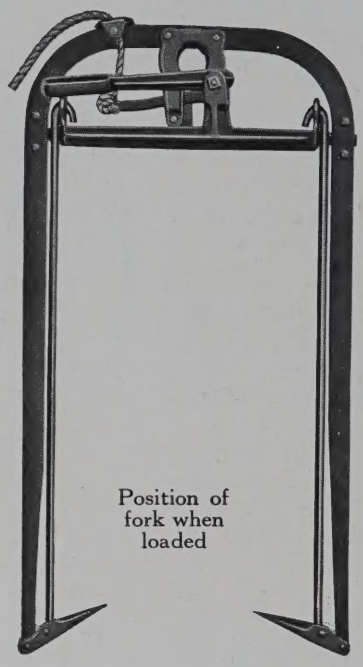
Louden Rocker-Bar Hay Fork — Fig. 1137

Specifications

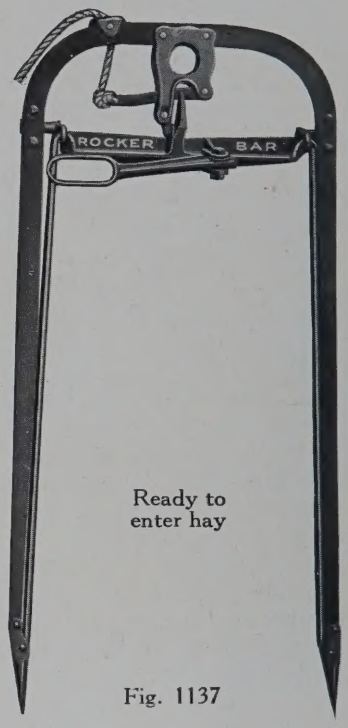
For use in any style of barn.
Can be used with any kind of hay carrier.
Will handle any kind of hay.
Length of tines under head (distance tines go in hay), 31 inches.
The tines and main frame of the fork are of special high carbon fork steel.
The rocker bar, toes and lock are certified malleable iron. Weight, 20 pounds.

The Louden Rocker-Bar Hay Fork is extra strong, constructed out of best quality high carbon fork steel. It enters the hay easily. Tines lock open and closed. Fork should always be *locked* open before entering the hay and then when shoved farthest down into the load locked shut.

The cross bar on the fork is placed near the top and the design is such that the fork gathers the hay or grain from the end of the point instead of from two inches above the bottom. This fork, therefore, has a larger capacity and will carry bigger loads than the ordinary double harpoon fork. When the load is carried into the mow the fork trips easy and will drop its load clean.



Position of fork when loaded



Ready to enter hay

Fig. 1137

Harris Double Harpoon Fork — Fig. 353

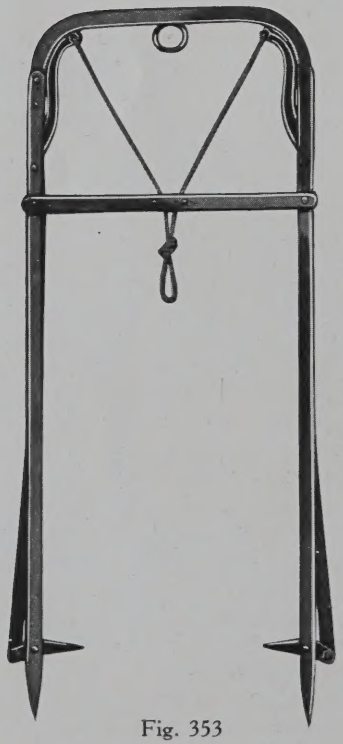


Fig. 353

Specifications

For use in any type of barn.
Can be used on any kind of hay carrier.
Made in three sizes:
Standard size.
Length of tines under cross bar, 24½ inches.
Width between tines, 15½ inches. Weight, 15 pounds.
Intermediate size.
Length of tines under cross bar, 31 inches.
Width between tines, 15½ inches. Weight, 17 pounds.
Large size.
Length of tines under cross bar, 32 inches.
Width between tines, 21 inches. Weight, 29 pounds.

The Harris Double Harpoon is the original harpoon fork. It has been on the market for years and will do good work under all ordinary conditions.

It is built of genuine fork steel, for use in any barn, with any type of hay carrier and in any kind of hay.

Nellis Single Harpoon Fork Fig. 356

Specifications

For use in any type of barn. Can be used with any hay carrier.
Length of tine, 26 inches. Weight, 11 pounds.

This is the old original type of hay fork. It will do good service in long, heavy timothy hay. Is not so successful in clover or alfalfa, especially if the hay is somewhat dry.

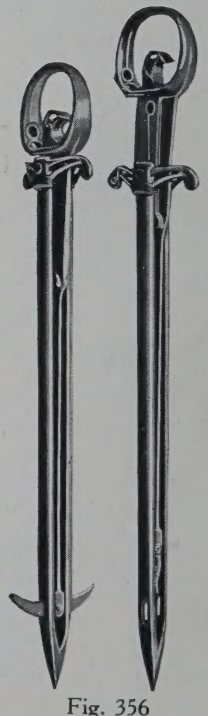
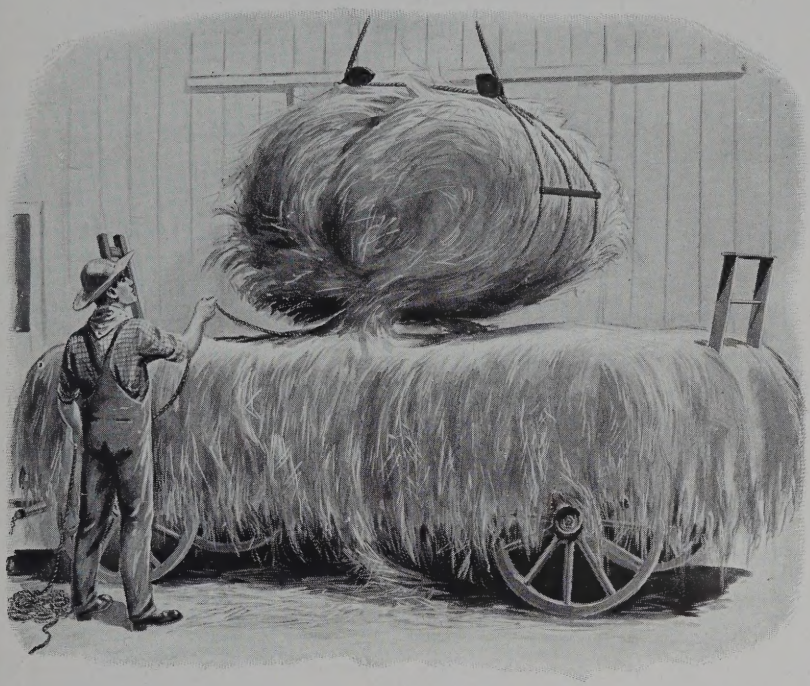


Fig. 356

Louden Hay Slings and Fittings



Cut No. 319

The Use of Slings

Like everything else, some judgment is required in using slings to obtain the best results. The power available, the length of the rack, the size of wagon-loads, and the space above beams in the barn should all be considered and the number of slings estimated and their length adjusted accordingly.

Slings require more room over beams than forks, therefore it is unwise to purchase a sling outfit that hangs away down below the track. We have always watched this point carefully and our carriers and sling attachments have been made compactly so as to occupy the least possible space.

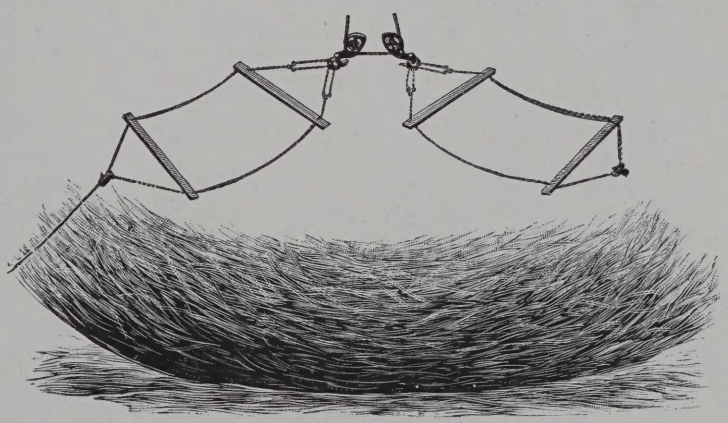
Our experience has been that the rack should not be over sixteen feet long (and fourteen feet is better) unless the barn, elevator and everything else is on a very large scale. When slings are spread the full length of a fourteen to sixteen-foot rack, about ten feet of space is required between the track and beams for the load to pass through. Larger racks require a greater amount of space for clearance.

Where a large amount of hay is to be handled, and there is sufficient clearance room through the hay door and in the mow for the large loads, there is no plan that equals the use of slings. Generally three slings are used to a wagon, taking the load into the mow at three drafts, and cleaning the rack perfectly with no shatterings to pick up.

The first sling is placed on the rack, using care to draw the ends out where they can be reached when the hay is piled on. One-third of the load is placed, another sling laid on, again using care to lay out the ends where they will be in reach. Another third of the hay is then loaded and the third sling laid on, when the loading is completed.

In unloading the hay, the sling pulleys are spread apart and one hooked into each end of the top sling. The power on the draft rope gradually brings them together and rolls the hay up as shown in Cut 319. When the sling is tripped the spring of the hay causes it to unroll and spread in the mow evenly (See Cut 320), and in practically the same shape it occupied on the wagon.

We were the originators of successful slings and sling carriers, and we warrant ours to be superior to any on the market. We have made a special study of slings and sling carriers, and during the past thirty years we have thoroughly tested and greatly improved them.

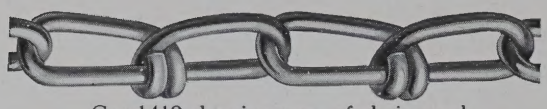


Cut No. 320

See How it Spreads the Hay

It is tripped in the center below the hay and separates into two parts, letting hay drop out between them, perfectly clear, and without tilting it on edge, as side trip slings invariably do. The hay being first rolled up, as shown in Cut 319, UNROLLS when discharged and spreads out in the mow or on the stack as wide as the length of the Sling, and in EXACTLY THE SAME SHAPE it lay on the load.

All Slings Made in Both Rope and Chain



Cut 1419 showing type of chain used.

Cut 1420 showing braid of rope used.

All Louden Hay Slings shown on the following pages are regularly made up in two ways—one has rope throughout to connect the wooden cross bars—the other has chain instead, except for the trip which in all cases is rope. Whether the sling shall be rope or chain is largely a matter of personal preference with the user, however, in ordering clearly state which type is desired. *Unless otherwise specified Rope will be furnished.*

Where a chain sling is preferred the Louden is an extremely practical outfit. In the first place it is very strong —the links being formed out of steel rod. Each link is double, the looped ends being twisted and fastened together in the middle with no corners or points projecting out to catch hay or become otherwise entangled. In fact it is next to impossible to kink the Louden chain or tangle it up, due to the smooth open construction of the ends of each link. Cut No. 1419 illustrates this superior type of link construction for chain slings. It is a point that means much in the busy hay season. In addition to the above feature each link of the Louden chain is galvanized to insure against rusting and afford long years of hard service.

All Louden Rope Slings are made out of an A No. 1 grade of rope that is particularly adapted to the hard usage a sling is put to. A good pliable rope that is easy to handle and extremely durable and strong. The size used varies slightly with the different types of Louden Slings made—but regardless of size the high quality always remains the same. Cut No. 1420 shows the manner in which this sling rope is braided.

Sling Coupling — Fig. 516

The coupling used with all Louden Slings except the Carry-All. It is made of certified malleable iron. Hay cannot get into the working parts and the trip cord can be easily and quickly attached. While the catch is positive and secure, a slight pull on the trip rope will cause the coupling to unlatch. Weight, 2½ pounds.

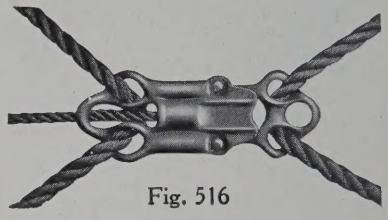


Fig. 516

Louden Standard Hay Sling

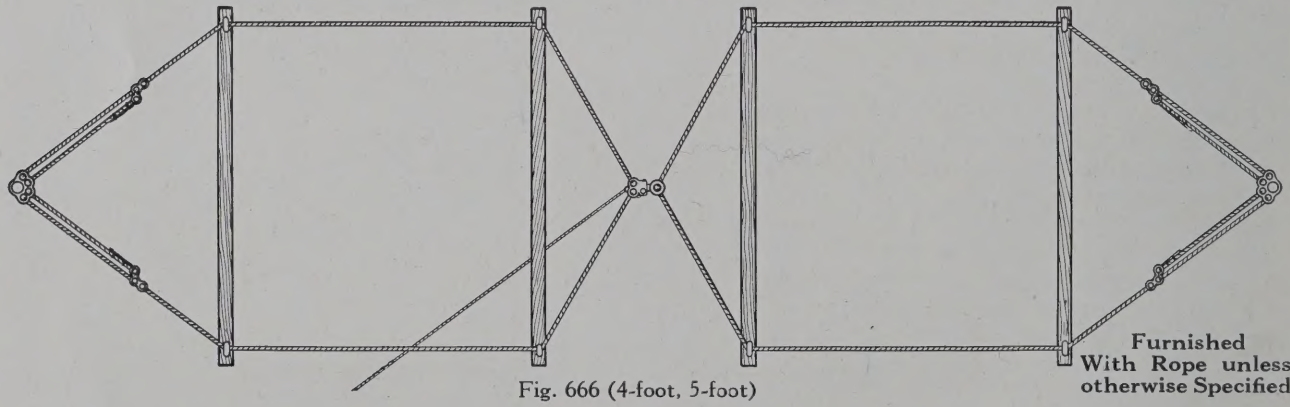


Fig. 666 (4-foot, 5-foot)

Furnished With Rope unless otherwise Specified

Specifications

Can be handled on any Sling Hay Carrier.
Furnished in 4-foot width and 5-foot width.
Cross bars are of 2-inch by 2-inch hard wood.
Length of sling is adjustable from 15 feet to 21 feet.
Fitted with either chain or rope.
Main ropes, ½ inch. Trip rope, ⅜ inch.
Ropes clamped to cross bars with Steel Hook Bolts.
Sling coupling of certified malleable iron.
Weight, 4-foot size, 22 pounds; with chain, 30 pounds.
Weight, 5-foot size, 24 pounds; with chain, 32½ pounds.

The Louden Standard Sling was the first successful type of hay sling placed on the market. It is a serviceable sling for general use and will give exceptionally good wear and service. For extreme short hay or forage however, we recommend one of the more closely constructed slings described on these pages. The moderate price at which the Standard Hay Sling is sold has made it very popular among hay growers. It is adjustable in length from 15 feet to 21 feet.

Louden Three-Rope Hay Sling

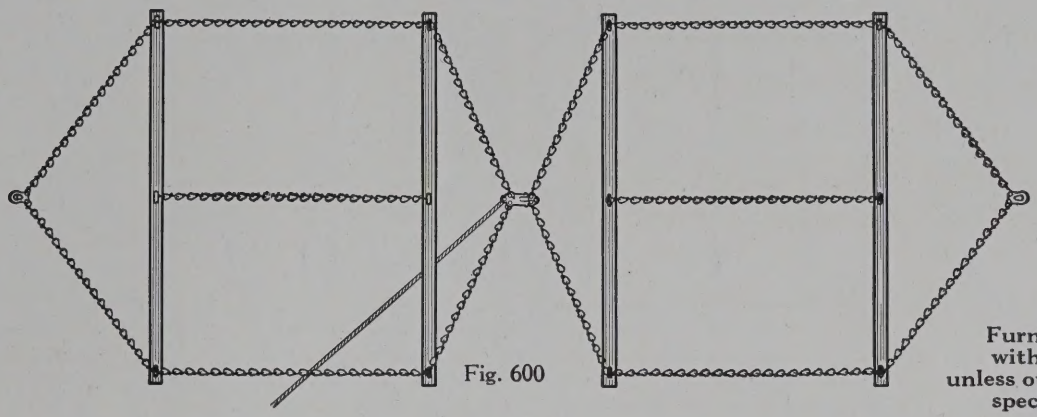


Fig. 600

Furnished with rope unless otherwise specified.

Specifications

Standard width of sling, 5 feet. Used with any sling carrier.
Cross bars are of hard wood, 2 inches by 2 inches by 5 feet.
Length of sling is adjustable from 15 to 21 feet.
Sling coupling of certified malleable iron.
Fitted with either chain or rope. Outside ropes, ½ inch.
Center ropes, ⅜ inch. Trip rope, ⅜ inch.
Ropes clamped to cross bars with Steel Hook Bolts.
Weight, 27 pounds. With chain, 35 pounds.

The Louden Three-Rope Sling is very strong and dependable. There are three main chains or ropes on each side. This offers a close, compact construction and makes this a desirable sling for handling the shorter growths of hay or threshed straw as well as for longer hay.

The coupling in the center is made strong for heavy work. The latch holds securely until the proper time when an easy pull on the trip will cause the coupling to separate and sling to drop its load.

Louden California Hay Sling

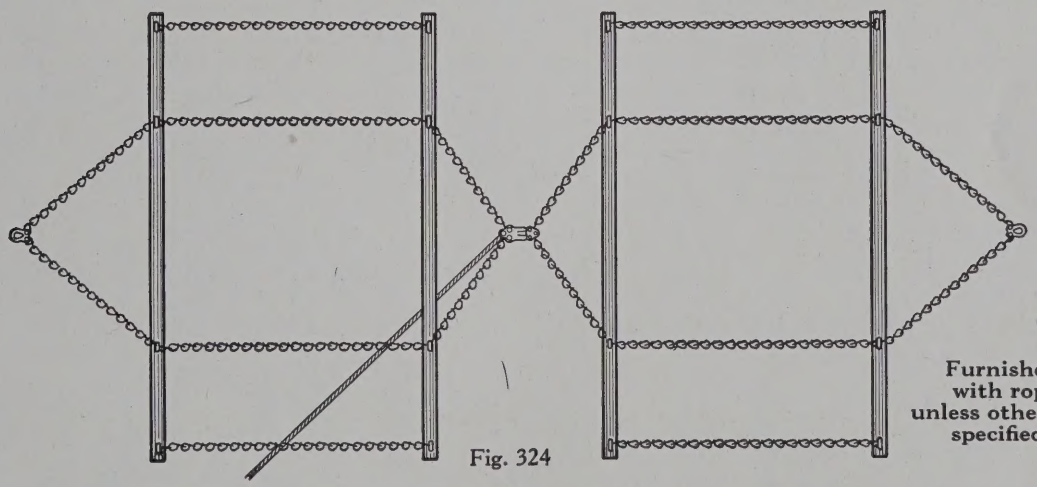


Fig. 324

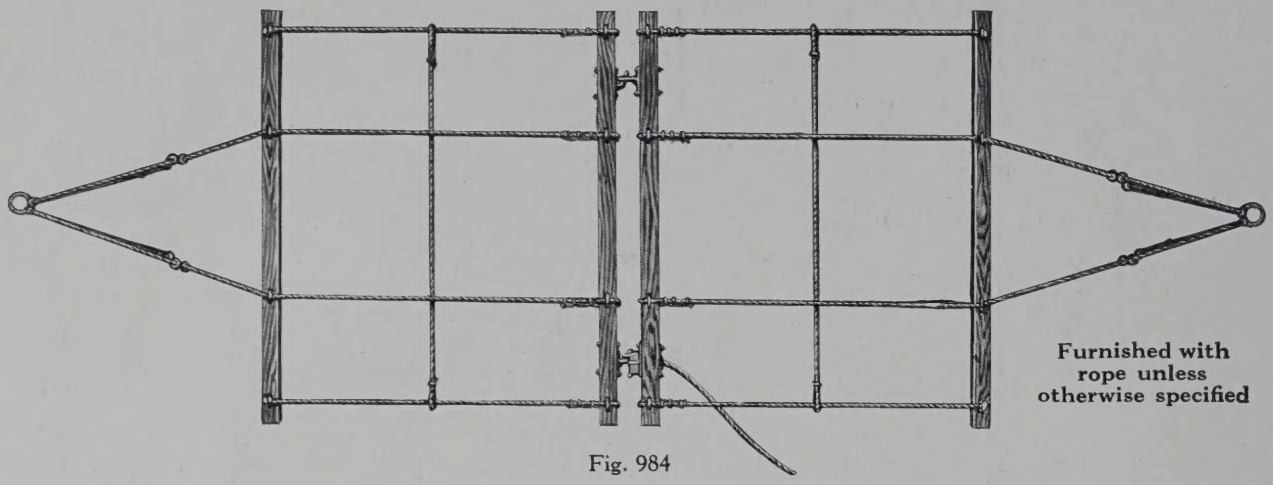
Furnished with rope unless otherwise specified.

Specifications

Width of sling, 6 feet. Length adjustable from 15 to 21 feet.
Cross bars are of hard wood, 2 inches by 2 inches by 6 feet.
Fitted with either chain or rope. Used with any sling carrier.
Sling coupling of certified malleable iron.
Main ropes, ½ inch. Center cross ropes, ⅜ inch.
Trip rope, ⅜ inch.
Ropes clamped to cross bars with steel hook bolts.
Weight, 28 pounds. Weight of chain sling, 34 pounds.

The California Hay Sling is designed for handling any kind of hay. It is especially recommended for very short hay or bound or headed grain. It is called the California Sling because of the great demand for it in the Golden State. With the exception of the Carry-All it is the heaviest and most compact sling we make. The coupling in the center is extra heavy and has a strong catch that will hold securely until the proper time when it trips easily. The sling is adjustable in length from 15 feet to 21 feet and by loosening the hook bolts the cross bars may be adjusted to fit any rack.

Louden Carry-All Hay Sling — Fig. 984



Furnished with rope unless otherwise specified

Fig. 984

Specifications

For use in any type of barn.
Can be handled with any Sling Hay Carrier.
Standard width of sling, 6 feet.
Cross bars are of hard wood, 2″x2″x6′.
Length of sling is adjustable from 15 to 21 feet.
Fitted with either chain or rope.

Main ropes, ½ inch. Center cross rope, ⅜ inch.
Outside rope, 7/16 inch. Trip rope, ⅜ inch.
Ropes clamped to cross bars with steel hook bolts.
Sling coupling of certified malleable iron.
Rope will be furnished unless otherwise specified.
Weight, 30 pounds; with chain, 38 pounds.

The Carry-All is the popular leader of the widely known and widely used Louden line of Hay Slings. It is designed for hard, heavy work and yet it works so perfectly and so easily that it is adapted for use anywhere that a hay sling can be used.

Experience has proven that this sling is strong enough to permit unloading an ordinary load of hay at two lifts, and can be used to handle ¾ of a ton loads. The design of the sling is new. The two cross bars in the center are held close together and are connected by a strong double lock instead of one lock only, as generally used.

This is the ideal sling for handling short growths, such as threshed straw, headed grain, bound grain, dry or short clover and alfalfa. On account of its close construction and the fact that it is connected at two points in the middle, there is no chance for short hay or straw to shatter through or fall out. The sling is equally well adapted for handling the long and heavy growths.

The double lock works easily and perfectly. The trip rope attaches to one lock only, the other lock being merely a hook and an eye. A slight pull on the single trip rope releases both locks simultaneously. The lock releases as easy under a heavy load as a light one. In coupling the sling together the hook is quickly inserted in the eye and at the other end the catch is snapped securely into place.

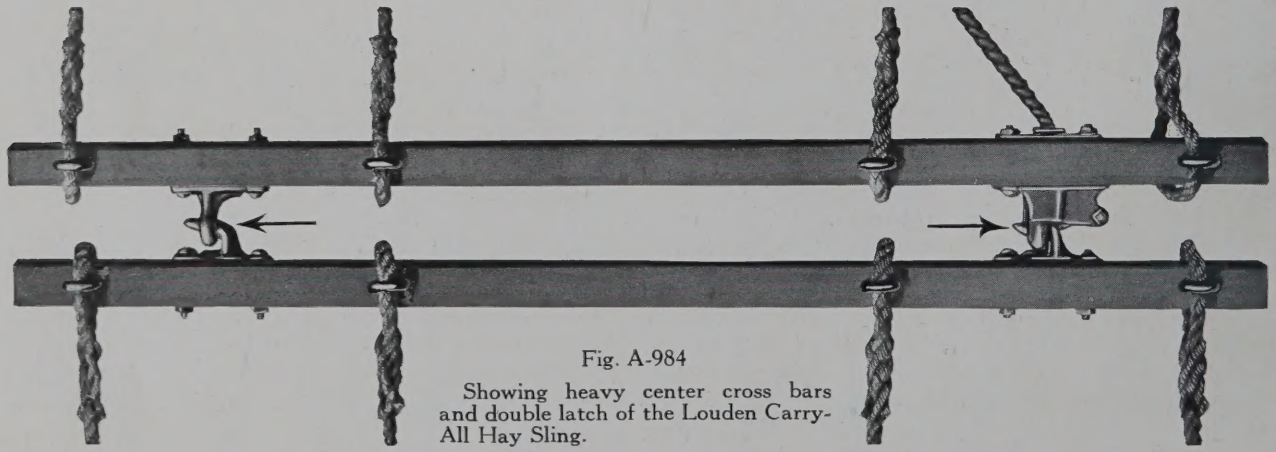


Fig. A-984

Showing heavy center cross bars and double latch of the Louden Carry-All Hay Sling.

Louden Handy Hay Sling — Figs. 1106 and 1332

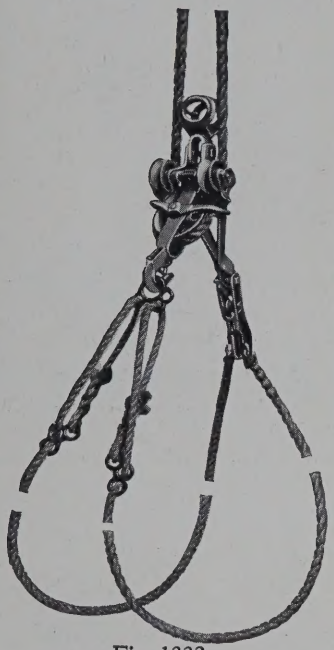


Fig. 1332

Made with either chain or rope.
Weight, Three-Rope Sling, 4¾ pounds.
Weight, Three-Chain Sling, 11 pounds.
Weight, Two-Rope Sling, 3¼ pounds.
Weight, Two-Chain Sling, 7 pounds.

The ease and convenience with which this sling without cross pieces can be handled has gained for it the appropriate name "Handy." As the sling has no spreaders it can more easily be carried and spread on the rack than slings having cross bars.

The sling trips at the end (or side) instead of in the center as do other slings. The sling can be made up of two ropes or three ropes as desired. Or chains can be furnished instead of rope, if wanted. The sling holder is provided with three latch hooks to carry either style sling.

The Louden Handy Hay Sling will handle any kind of hay or forage. The sling is easily drawn out from under hay in the mow and can be used in filling the barn full up to comb. Three slings are generally required for each wagon. However, this varies with different users and different conditions. Always remember, there is a Louden equipment for every hay unloading need.

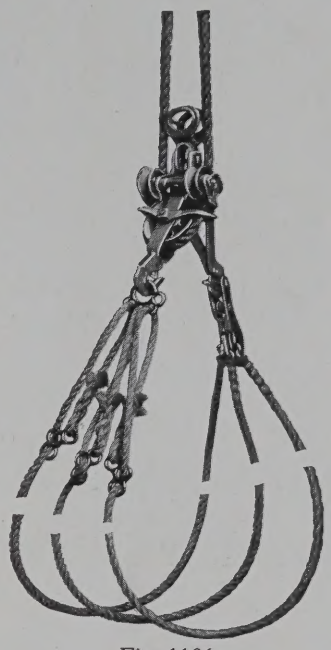


Fig. 1106

Handy Hay Sling Holder

Fig. 1106-A shows the Louden Handy Hay Sling Holder which is used with Handy Hay Sling, Fig. 1106 or 1332. Only one of these holders is required for each carrier. The holder is made of certified malleable iron and is intended for use with right angle or parallel sling pulleys. The latch or trip in the Louden holder is quickly set and is secure, yet will always trip easily at the proper time. Fig. 1106-A complete, weighs 2 pounds.

Fig. 1333 illustrates the Louden *Right Angle* Sling Pulley with Handy Hay Sling attachment, built all in one piece. We also make the Louden *Parallel* Sling Pulley with handy hay sling attachment all in one piece (Fig. 1369, page 44). Either of these two pulleys with the built-in attachment makes the use of the Handy Hay Sling easy and quick. Fig. 1333 shows chain sling attached but either chain or rope may be used with the holder.

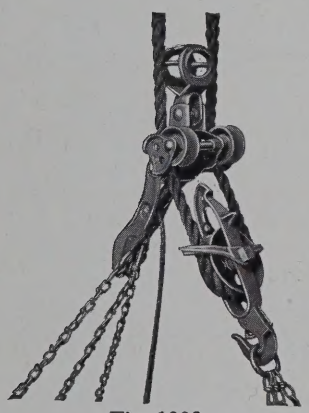


Fig. 1333

Fig. 1106-A

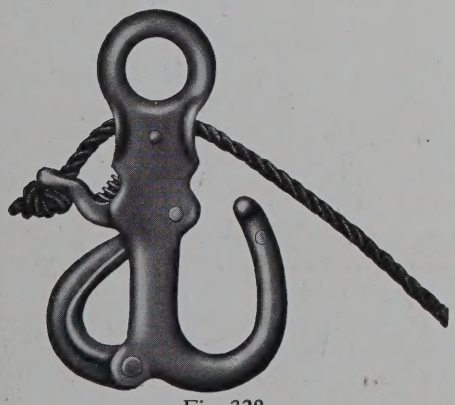


Fig. 328

Side Trip Sling Holder

(For Use with Fork Carrier Only)

Fig. 328 represents our Side Trip Sling Holder, and Cut No. 329 is the same with ropes attached. The ropes are laid on the rack under hay to be elevated and the ends are drawn up by hand. The looped ends are slipped over the trip Y, which is then locked. The other ends are usually drawn through the hook H and tied in a bow knot. Four sets of ropes to a wagon are generally used.

Weight, 2¼ pounds.

Cut No. 329

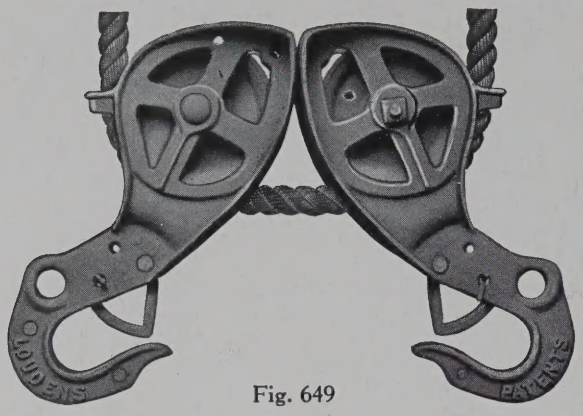


Fig. 649

Louden Parallel Sling Pulleys Fig. 649

Specifications

Can be used with any Louden Hay Sling Carrier.
Can be used with any center-trip hay sling.
Frame of pulley of certified malleable iron.
Rope wheels of special quality gray iron.
Furnished for wire draft rope on order.
Diameter of rope wheels, 4 inches.
Weight, per pair (2 pulleys), 7½ pounds.

The Louden Parallel Sling Pulleys are built for use wherever there is need for a sling pulley. The pulley frame is of certified malleable iron, with heavy reinforcing ribs at points where strength is needed.

The meeting edges of the pulleys are provided with wide flanges and the upper ends are closed so they cannot run into each other. The rope wheels and the pulley frames are made smooth and free from sharp corners so they will not wear the rope. The hooks are fitted with self-acting safety stops to prevent the slings from becoming detached. Eyes are provided in the lower end of the pulleys into which the end of draft rope can be fastened when it is desired to rig the pulleys triple draft.

Louden Senior Parallel Pulleys Fig. 650

Specifications

For use with cable draft rope.
Can be used with any center-trip hay sling.
Frame of pulley of certified malleable iron.
Rope wheels of special quality gray iron.
Diameter of rope wheels, 5 inches.
Weight, per pair (2 pulleys), 15½ pounds.

The Louden Senior Parallel Sling Pulleys are of the same design as the regular parallel sling pulleys except they are larger and heavier and are fitted with sheaves or rope wheels for ⅜-inch cable draft rope instead of manilla rope. The Senior pulleys are desirable where the work is extremely heavy.

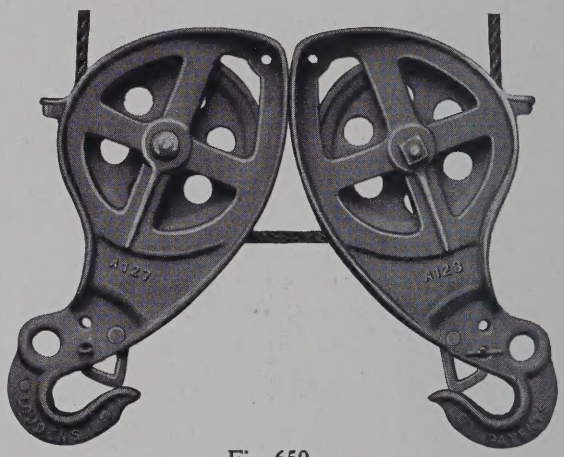


Fig. 650

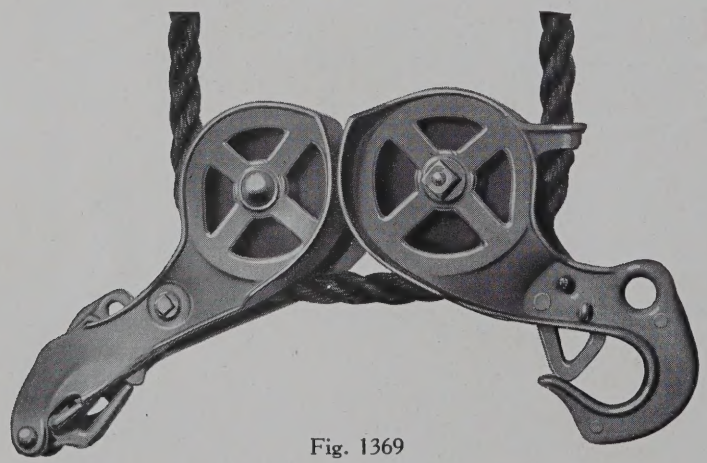


Fig. 1369

Parallel Sling Pulleys With Handy Hay Sling Attachment

Specifications

Can be used with any Louden Sling Carrier.
Used with Handy Hay Sling only.
Frame of pulleys certified malleable iron.
Rope wheels, special quality gray iron.
Furnished for wire draft rope on order.
Diameter of rope wheels, 4 inches.
Weight, per pair (2 pulleys), 8½ pounds.

This is a very practical outfit to use in connection with the Handy Hay Sling. The handy sling attachment being built into the sling pulley not only makes it much more compact but does away with handling one extra piece, such as is necessary when the attachment is separate. With the exception of the built-in attachment, Fig. 1369 Handy Hay Sling Pulleys are identical in design and construction with the regular Louden Parallel Sling Pulleys, Fig. 649.

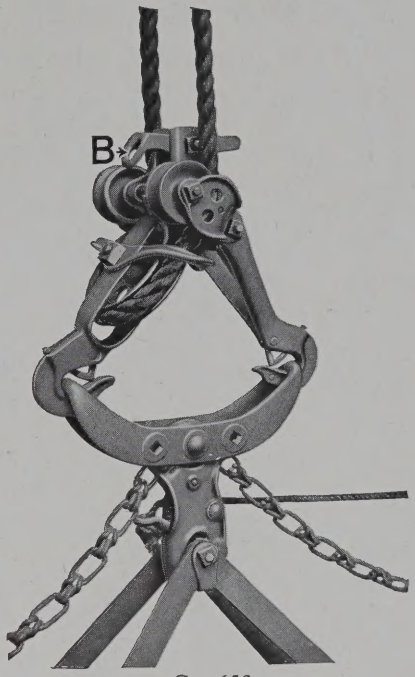
Louden Fork Clevis for Sling Pulleys — Fig. 652

Fig. 652

Specifications

Can be used with Parallel or Right-Angle Sling Pulleys.
Can be used with any style of fork.
Made of certified malleable iron.
Weight, 2¼ pounds.

Fig. 652 represents our Fork Clevis hooked to our Parallel Sling Pulleys so that a fork can be used. Cut 653 is the same showing the clevis hooked to our Right Angle Sling Pulleys. The cuts show upper portions of our Grapple Forks with the heads placed between the sides of the clevis and secured thereto by bolts passed through thimbles in the eyes of the fork heads. The clevis can be quickly hooked to or unhooked from the pulleys so there is no time lost in changing from the fork to the sling.



Cut 653

It is just the thing when the top of the load is taken off with a fork and the bottom is cleaned up with a sling. When triple draft is used as shown by the extra rope A, in Fig. 652, the fork should be hung one-third way from this end to balance the clevis properly. When double draft is used as shown in Cut No. 653, it should be hung in the center. Triple draft may also be used with the Right Angle Pulleys by passing the third rope through the eye at the top in the center and knotting the end at B.

Sling Binding Pulley Fig. 332 for Fork Carriers

Many farmers and hay growers follow the practice of removing the top of load with a fork and cleaning up rack with a sling. Or, sometimes, it is necessary to haul a load of dry, fine straw that cannot well be handled with a fork, and it is desired to use a sling. The Louden Sling Binding Pulley is a very handy tool to use for this work.

It can be used with any fork carrier such as the Louden Junior, having a fork pulley not larger than 4 inches and without any change of rope or re-threading of carrier. In the illustration the Pulley A represents the regular fork pulley used with the carrier. The Pulley B is the Sling Binding Pulley. The Fork Pulley A is slipped through the Sling Pulley B, the two pulleys are then spread apart and hooked into the two ends of the sling. When the load starts to lift, the Fork Pulley A slips back through the Sling Pulley B and registers in the carrier. This binds the load securely and the carrier supports the load as it is being carried back into the mow the same as in ordinary work. The Pulley B is the only extra part necessary to handle. This can be kept hanging within easy reach of the man on the load, so no time is lost in changing from fork to sling.

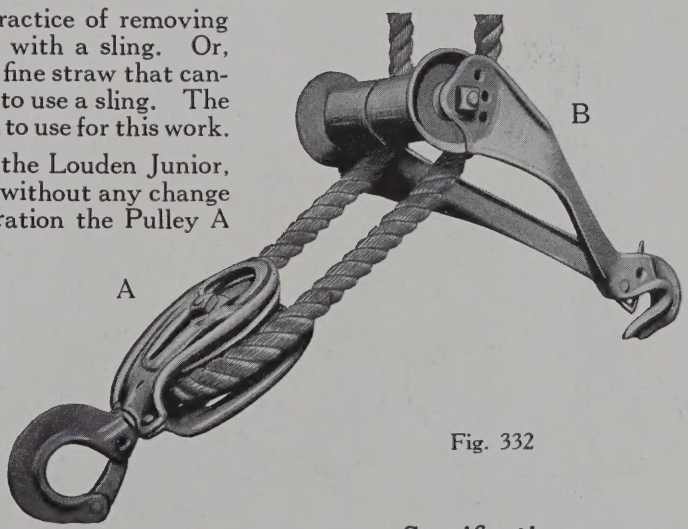


Fig. 332

Specifications

Frame made of certified malleable iron.
Wheels special quality gray iron.
Weight (part B only), 5 pounds.

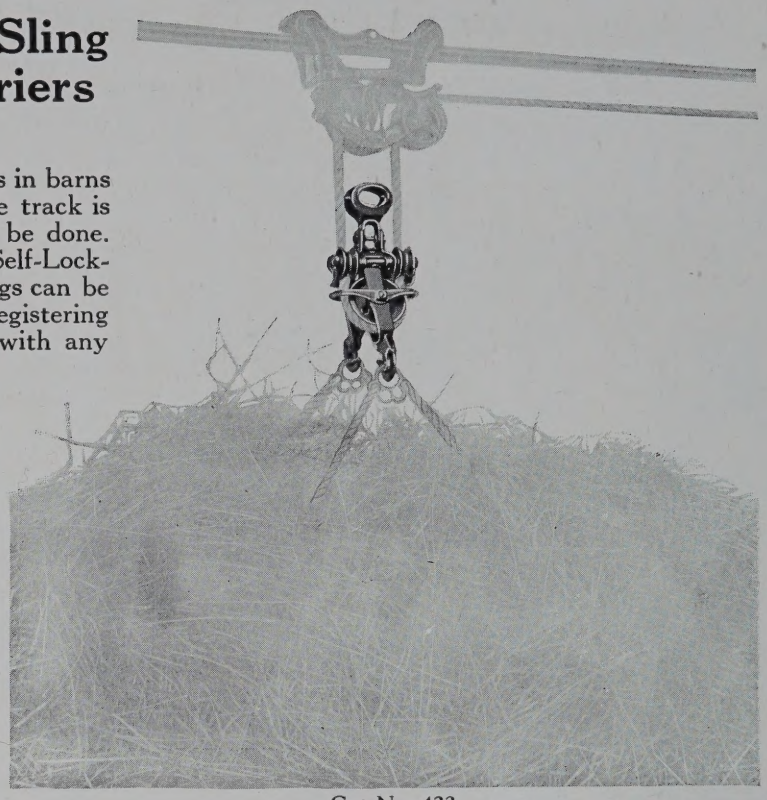
Louden Self-Locking Sling Pulleys for Fork Carriers

(Right Angle Sling Pulleys)

It is sometimes desired to use hay slings in barns already equipped with fork carriers. If the track is good and the carrier is strong, this can be done. Cuts at bottom of page illustrate Louden Self-Locking Sling Pulleys. With these pulleys slings can be handled with any hay carrier, using a registering head. We can furnish the pulleys fitted with any of the registering heads illustrated on opposite page. New heads are made to fit other carriers when there is sufficient call for them.

Our advice to customers who wish to use hay slings and have a considerable amount of hay to handle, is to buy a regular sling carrier built for heavy work.

However, we sell thousands of these sling pulleys for use with fork carriers of all kinds and they always give good satisfaction so long as care is used not to overload the carriers.



Cut No. 422

Louden Self-Locking Sling Pulleys are made up in two different sizes. Fig. 330 with head R. H. 1 is for use with the Louden Junior Carrier. Fig. 1416 with head R. H. 28 is for use with the Louden Senior Carrier. The latter though not illustrated is identical in construction to the former, only that it is a little larger and is regularly fitted for both cable and rope.

Cut 422 represents a set of Louden Self-Locking Sling Pulleys in use with the Louden Junior Fork Carrier. The pulleys are shown locked together but not yet registered in the carrier. Fig. 330 is a front view of the pulleys for the Louden Junior Carrier locked together and Cut 331 is a side view of the pulleys spread apart to connect to the sling. As the load is elevated, the two parts of the sling pulley come together and lock as shown in Fig. 330. The registering head then enters the carrier and is engaged by the grappling hooks the same as the fork pulley when a fork is being used. Fig. 1416 (not illustrated) pulleys for the Louden Senior Carrier, operate in exactly the same manner.

Cut No. 331

Specifications

Made in two sizes. *Specify Size Desired.*
Fig. 330 for Louden Junior Carrier.
Fig. 1416 for Louden Senior Carrier.
Furnished with registering heads to fit any carrier.
Used with Louden Carriers, slings are carried within 20 inches of the track.
Pulleys are of certified malleable iron except the wheels.
Wheels are of special quality gray iron.
Fig. 330 regularly fitted for rope only. Can be fitted for cable on special order.
Fig. 1416 fitted for either rope or cable.
Weight, Fig. 330, 11 lbs.
Weight, Fig. 1416, 18 lbs.

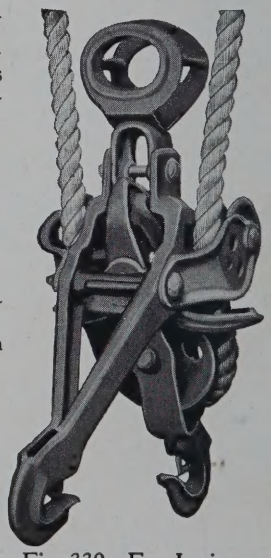
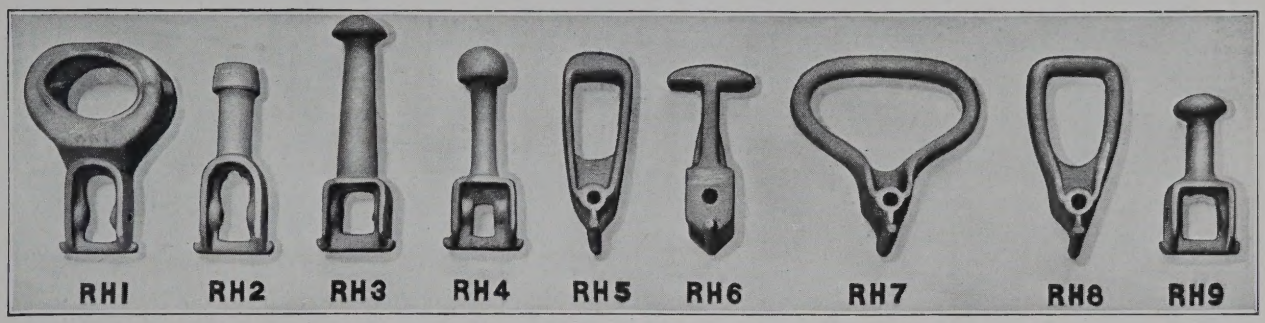


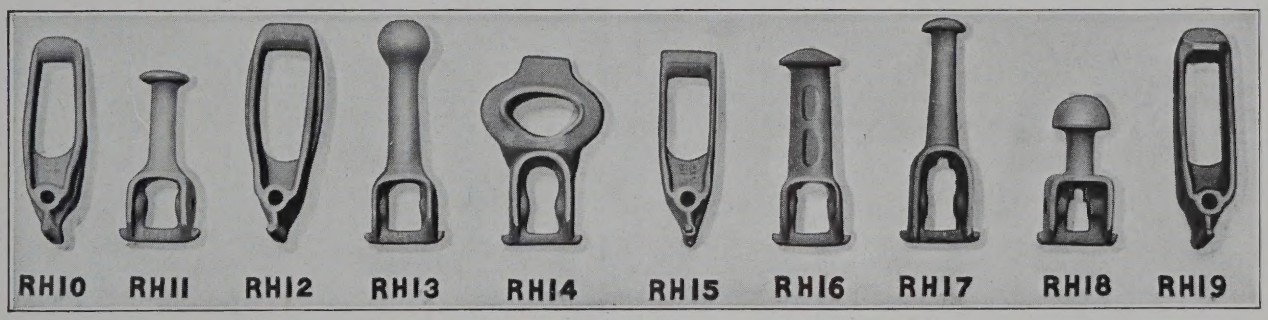
Fig. 330 For Junior
Fig. 1416 For Senior

Registering Heads Used with Louden Self-Locking Sling Pulleys

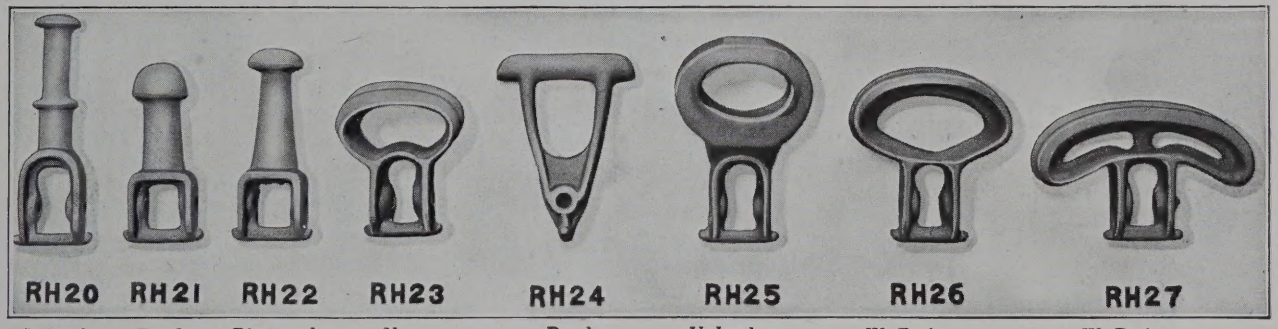
For Different Makes of Fork Carriers



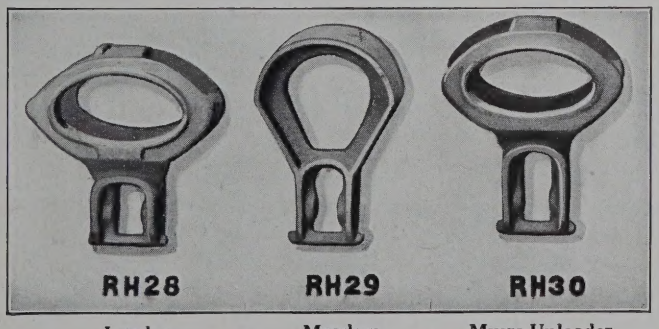
Louden Junior | Hall | Star | Leader | Church | Porter | Milwaukee Reversible | Milwaukee Swivel | Burbanks Eclipse



Ney and Superior | Osborn | Jordan | C., B. & Q. | Myers O. K. | Ashland | Myers Combination | Ideal and Jumbo | Janesville Deadlock | Haymaker or Imperial



Porter's Swivel | Boyd | Diamond | New Diamond | Boyd Reversible | Unloader Clover Leaf | W. B. Acme 1st Pattern | W. B. Acme Improved



Louden Senior | Meadow King | Myers Unloader 7-in. Sheave

The illustrations above show the Registering Heads which we make for our Self-Locking Sling Pulleys. These heads will fit the different carriers named.

When in doubt as to the head required, send the fork pulley of your carrier by express, prepaid, and we will fit the pulley with the proper head and return fork pulley with order.

The R. H. 1 is the Registering Head regularly used with the Louden Junior Fork Carrier.

The R. H. 28 is the Registering Head regularly used with the Louden Senior Fork Carrier.

Louden High Grade Pulleys

Built For Hard Usage

Every article about a haying outfit should be first-class, strong and durable. When hay tools break right in the rush of the haying season it means delay, often a trip to town for the necessary repairs, loss of time, frequently loss and injury of hay, and occasionally serious accidents. Such breakages occur chiefly from the use of poor pulleys —pulleys that look alright to the naked eye but are lacking in strength when the vital test comes—when the sudden strain is thrown on them. It is therefore important that every user of Hay Tools should buy first-class pulleys.

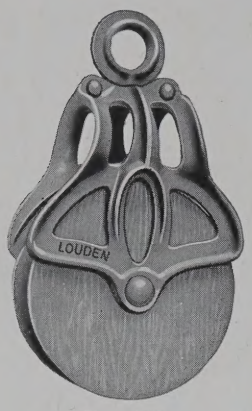


Fig. 467

Knot Passing Pulley. Certified malleable iron frame, swivel eye, 6-inch hard maple sheave seasoned in oil.

Weight, 3¼ pounds.

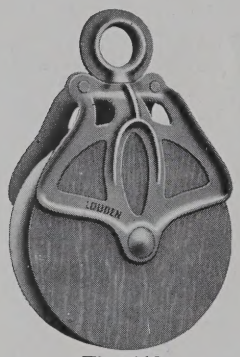
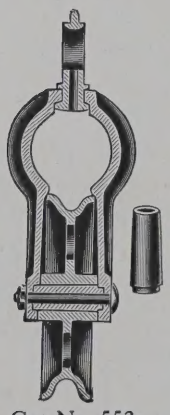


Fig. 468

Draft Pulley. Certified malleable iron frame, swivel eye, 6-inch hard maple sheave thoroughly seasoned in oil.

Weight, 3 pounds.



Cut No. 553

Sectional View of Louden High Grade Pulleys.

Strong—Durable—Easy on Rope

We make a specialty of High-Grade Pulleys which we illustrate on the following pages. We have given special care and attention to the designing of our pulleys, taking into consideration every detail which would add to their merits. In making the eye and the frame we have placed the metal where the strength is needed, and cut it out where it is not needed, so that the pulley may have all the strength necessary, and at the same time be light and neat and not cumbersome to handle. The frame is made in two parts, held together by rivets and bolts. The wheel or sheave turns on a large steel bushing, recessed into the frame of the pulley and held in position by a bolt. This gives the pulley great strength.

Good Pulleys Avoid Delays

We handle the cheaper grade pulleys, but we cannot too strongly recommend the use of the best pulleys that can be purchased. Do not be persuaded to use cheap pulleys. The saving is only a trifle in the first cost, and the use of cheap pulleys may mean much damage and loss in harvest. With so much at stake, the best is by all odds the cheapest in the end.

Louden High-Grade Pulleys have, through many years of continuous, satisfactory service, proved themselves superior in design, construction and durability. They have no sharp corners to wear the rope. The eyes are heavily ribbed and have tubular swivels, which add materially to their strength and efficiency.

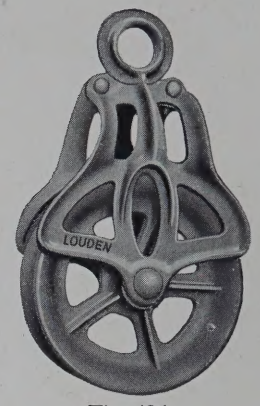


Fig. 494

Knot Passing Pulley. Malleable frame, swivel eye, 6-inch diameter sheave. Sheave made of special quality gray iron.

Weight, 5½ pounds.

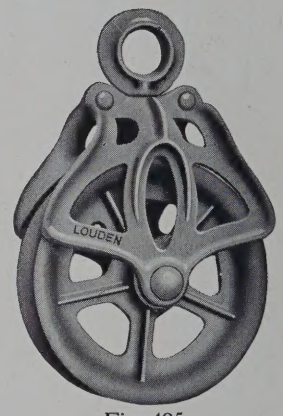


Fig. 495

Draft Pulley. Malleable frame, swivel eye. 6-inch diameter sheave. Sheave made of special quality gray iron.

Weight, 5⅛ pounds.

The wood sheaves turn on large metallic bushings, recessed into the sides of the pulley frames, held in place by heavy bolts. The bearings in the iron sheaves also turn on large bushings which support the weight of the load and protect the connecting bolts from wear.

Louden Pulleys are Quality Made

The sheaves in the four pulleys shown on this page are interchangeable. Cut No. 553 is a sectional view of the Iron Sheave Pulley, showing the tubular eye, the projection in the frame which protects the rope from the edge of the sheave, the steel bushings on which the sheave turns, the recess in the frame in which the bushing rests, and the bolt that holds it in place. This shows the sturdy, rugged and exceptionally durable construction which characterizes all Louden High-Grade Pulleys and gives them marked superiority over all others—they are quality built to every hidden detail.

Louden Mammoth Pulley— Fig. 519

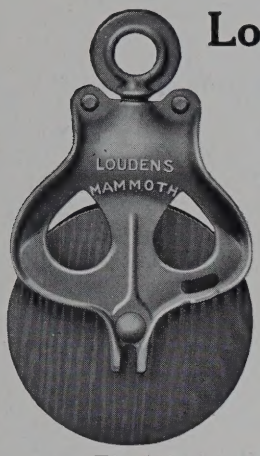


Fig. 519
Mammoth Pulley. Malleable frame. 7-in. sheave. Weight, 5¼ pounds.

The Mammoth Pulley is made for heavy work. It has a select 7-inch hard maple sheave, seasoned in oil. It has the tubular swivel eye, large steel bushings on which the sheave turns, the guard over the edge of the sheave to prevent the rope from cutting,—in fact all of the good features of the pulleys previously described, and in addition is larger and stronger. The large sheave makes this pulley easy on the rope. It is a quality pulley in every detail.

Fig. 579
Cable Pulley. Certified malleable iron frame. Swivel eye. 8-inch diameter sheave. Sheave is made of special quality gray iron. Weight, 9¼ lbs.

Cable Draft Rope Pulleys

Louden Cable Pulleys are made with certified malleable iron frames and have all the good features of Louden Rope Pulleys. We make them with iron wheels only, and the pulley throughout is made extra strong and durable.

Fig. 579 Cable Pulley has the tubular swivel eye, frame made in two parts, held together with heavy bolts and rivets, large malleable bushing held in recess in the pulley frame by a good strong bolt and projections or guards in the opening of the frame to protect the cable from the edge of the sheaves (see page 48, Cut 553). The hole in the sheave is chilled and turns on a heavy steel bushing. The groove in sheave is made suitable for a ⅜-inch diameter cable.

Fig. 1313 Pulley though slightly different in design is made the same except that the wheel turns on roller bearings instead of a plain steel bushing.

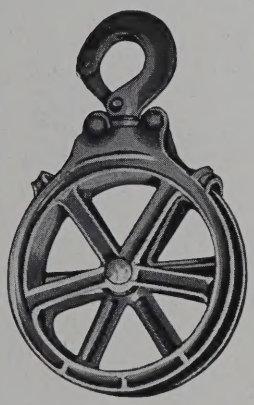


Fig. 1313
Cable Pulley. Malleable iron frame. Swivel eye. 7-in. diameter sheave. Sheave made of special quality gray iron—turns on roller bearings. Wt. 7½ pounds.

Louden Upright Floor Pulley Fig. 364

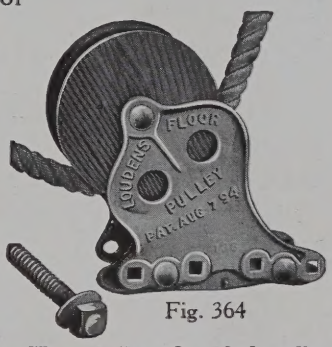


Fig. 364
Floor Pulley. Certified malleable iron frame. 4½-inch diameter sheave. Sheave made of hard maple seasoned in oil. Attaches to floor with lag screw. Weight, 4¾ pounds.

This pulley is designed for use on the floor and in other places where common pulleys lop over when the rope is loosened, thus causing the rope to rub and bind in the pulleys. Every user of hay tools knows this is annoying and expensive.

Our Upright Floor Pulley does not lop over or unhook, nor bind and hold the rope while the carrier is being drawn back. A slot in the bottom of the pulley slips over the head of the skein bolt, which is screwed into the floor and while holding the pulley upright, lets it turn freely in any direction. They may be used with as good results on a wall or a post in a vertical or inclined position, as in a horizontal position.

Fig. 1139

Louden Fork Pulleys

Fig. 366 is the Louden Fork Pulley used with all Louden Fork Carriers except the Louden Senior Carrier, Fig. 1100. It has a 4-inch sheave and a strong certified malleable iron frame with safety hook that has the tubular swivel. Weight, 3¾ pounds.

Fig. 1139 is the Louden Fork Pulley used with the Louden Senior Fork Carrier only. It has a 7-inch sheave made of special gray iron and turns on roller bearings instead of a plain steel bushing. Weight, 7½ pounds.

Both Pulleys are built on the same general lines with the same quality materials as our high-grade pulleys previously described.

Fig. 366

Louden Return Rope Pulley

Fig. 359

Fig. 359 is the Louden Return Rope Pulley with a wood sheave 3 inches in diameter. The groove of the sheave is made for ½-inch rope and smaller. Weight, 1 pound.

The frame of the pulley is made out of certified malleable iron—strong and durable. The sheave is hard maple seasoned in oil—lasting and easy on the rope. Sheave turns on steel bushing insuring years of service. In fact this pulley is identical in construction throughout with the Louden quality made wooden sheave pulleys shown on page 48.

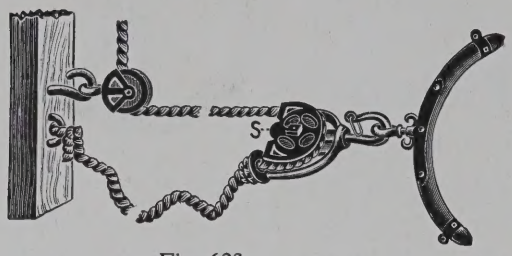


Fig. 623

Snatch Pulley Block—Fig. 623

The Snatch Pulley Block shortens the distance the horse travels. After passing through the lower draft pulley, the end of the rope is made fast to the barn wall or a stake driven in the ground. Before making the end of the rope fast a washer should be slipped on and a knot tied in the rope, as shown in the illustration. Snatch Pulley can then be put in place on the rope. One side of the pulley is open so the rope can be thrown off and on. When load is pulled into mow, the rope can be thrown off the pulley and the fork returned to the wagon without waiting for the return of the horse. When the horse again reaches the barn the next load will be ready—saves time.

Specifications

Frame made of certified malleable iron.
Rope wheel special quality gray iron.
Rope wheel 4 inches diameter.
Weight, 4¼ pounds.

Cast Frame Pulleys

Fig. 522. Cast Frame Draft Pulley, 6-inch wood sheave, has large, loose pin, self-oiling axle. Weight, 3¼ pounds.

Fig. 729. Cast Frame Knot Passing Pulley, 6-inch wood sheave, has large, loose pin, self-oiling axle. Weight, 4 pounds.

These pulleys have the tubular swivel eye.

Fig. 522 Fig. 729

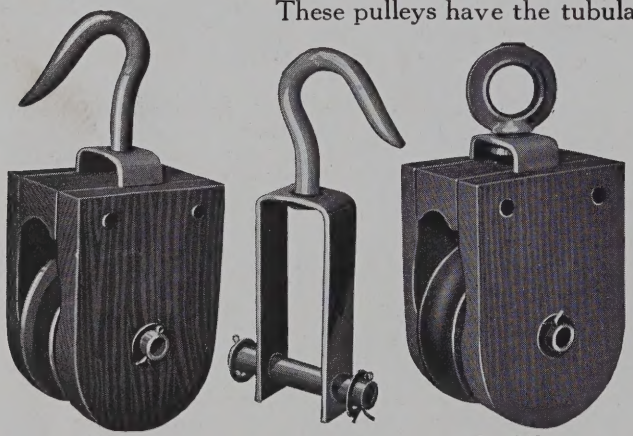


Fig. 641 Fig. 642

Wood Frame Pulley—Reed Pattern

Frame is made of hard wood held together by rivets at top. Wrought steel yoke supports the large, hollow, self-lubricating axle on which sheave turns. Sheave hard maple. A good strong pulley. Fig. 641 shows pulley with steel hook. Fig. 642 shows pulley with certified malleable eye. Weight, 2¾ pounds.

Floor and Rafter Pulley Hooks

Fig. 390 shows the Louden Steel Rafter Pulley Hook, ⅝x6 inches. Weight per dozen, 10½ pounds. Where big loads are being lifted it is always good policy to place a timber in between two rafters, fastening the hook to said timber in order that the strain may be distributed on two rafters instead of one. Otherwise there is the danger of pulling a rafter out.

Fig. 389 illustrates the Louden Steel Floor Pulley Hook, ¾x7 inches. Weight per dozen, 12 pounds. In lifting big loads a tremendous strain is placed on this hook, therefore it should be anchored in a good solid timber.

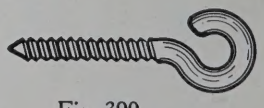


Fig. 390

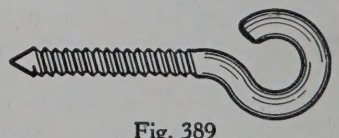


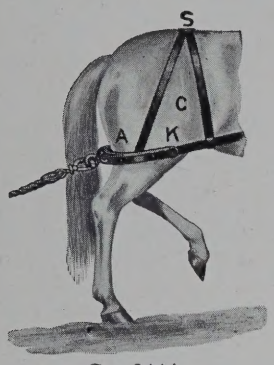
Fig. 389

Louden Pulley Holders for Steel Track

Fig. 470

The Pulley Holder, Fig. 470 is designed for use with the Louden Weight Return, Fig. 529, page 54 and also at any other place where it is necessary to hang a pulley immediately underneath a Steel Hay Carrier Track.

Fig. 470 Pulley Holder for Double Bead Steel Track weighs 7/8 pound. It is made of certified malleable iron and is clamped to the steel track by means of a heavy bolt.



Cut 344A

Louden Hoisting Singletree — Fig. 344

Specifications

For use wherever hoisting is to be done with a horse. Body of hard wood. Trimmings of malleable iron. Weight, 6 pounds.

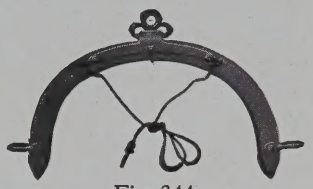


Fig. 344

The Louden Hoisting Singletree was designed for use anywhere that hoisting is to be done with a horse or team when the Singletree has no support. It is especially popular and desirable for use with the hay unloading rig at hay time. It is equally valuable for any kind of hoisting with horse power, plowing or cutting ice, plowing in orchards, vineyards or other places when the ends of the singletree are liable to injure the trees or vines.

The Singletree does not drag against the horse's legs, and the traces do not unhook or get under the horse's feet in backing or turning. See illustration 344-A. Traces pass through keepers (K) and along back of singletree to hook in center. The Singletree being bent, this brings it close to the horse, like a breeching. No need to shorten the traces. It is held up by a cord (C), having a snap (S), which hooks into the trace carrier iron. The eye to which the draft rope is fastened is swiveled, which keeps it from kinking.

The Singletree saves much time. The horse can be turned short around and there is no chance for the horse to get over the traces. Also the rope is held up off the ground so the horse cannot step on it.

Louden's Spreader Attachment Fig. 345

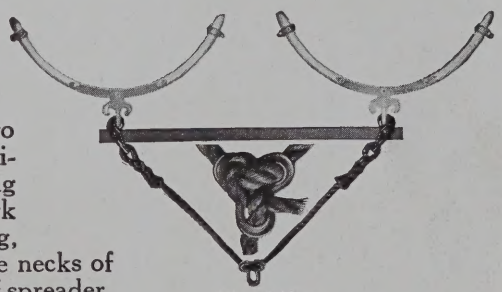


Fig. 345

Fig. 345 shows our Spreader Attachment by which two singletrees can be hitched together for use with a team. For ordinary hoisting, we use a rope with spreader and attach hoisting rope to it, as shown by enlarged figure in center. For other work a chain may be used. Unequalled for four or six-horse teaming, as it does not strike the horses' legs and places no weight on the necks of the team behind. To attach singletrees remove hooks from ends of spreader, hook on singletree and replace hooks and bolts. Weight, 5 pounds.

Louden Lightning Rope Hitch — Fig. 367

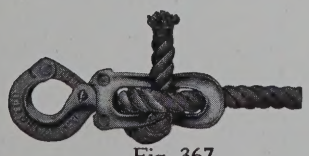


Fig. 367

For quickly connecting singletrees or doubletrees to draft rope. No time lost tying or untying knots in the rope. The rope is slipped through the hitch and the end bent around and slipped under itself. It can be instantly attached or detached and will hold securely; also can be adjusted to lengthen or shorten the rope. It is provided with a safety hook which will not become unlatched. Made out of certified malleable iron. Weight, 1 1/8 pounds.

Louden Swivel Rope Hook — Fig. 383

The Louden Swivel Rope Hook is furnished as regular equipment for the Louden Cross Draft Carrier, the Louden Reversible Wood Track Carrier and Louden Round Barn Carriers. It should also be specified wherever triple draft is used with parallel sling pulleys such as is shown in Fig. 652, page 45. Easily attached to rope—prevents twisting. Safety latch hook end. Made out of certified malleable iron. Weighs 1/2 pound.

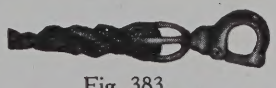


Fig. 383

Louden Bracket Pulley Holder—Fig. 348

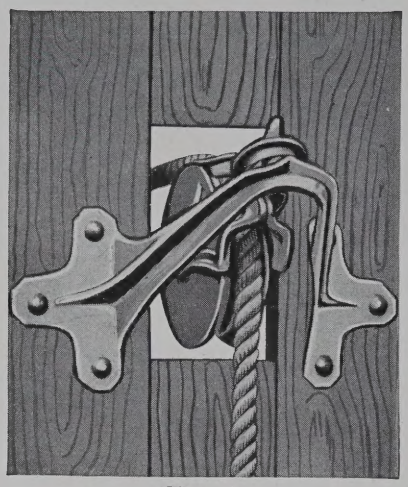


Fig. 348

Specifications

For supporting pulley for draft rope. Made of malleable iron. Will carry any common pulley. Weight, 3 pounds.

Louden Bracket Pulley Holder is used to carry the draft rope out through the barn siding close to the eaves and carries the rope close to the mow so that the hay does not interfere with the rope or pulleys when the mow is full. The hole in the side of the barn is small and the pulley is up close to the eave and is always in the dry. Pulley can be put in or removed easily from inside of barn. In barns where hay is taken in at one end or both ends, if the rope is run the nearest way to the ground from end of track, it reduces friction and requires less rope.

The holder supports the pulley and at the same time allows it to adjust itself in line with the draft. It also holds the rope free so it does not rub and wear on the timbers. To attach the holder, cut a hole in the barn siding 4 inches wide and 8 or 10 inches high. Bolt the holder in place so the hook will be even with the top of the hole. Bolts are furnished with the holder. This is an inexpensive article that should be included with every hay-unloading outfit for barns as described. The saving in the amount of draft rope required, the less amount of wear on the rope, and the reduced friction, make the Bracket Pulley Holder a profitable investment immediately.

Louden Offset Hinges—Fig. 349

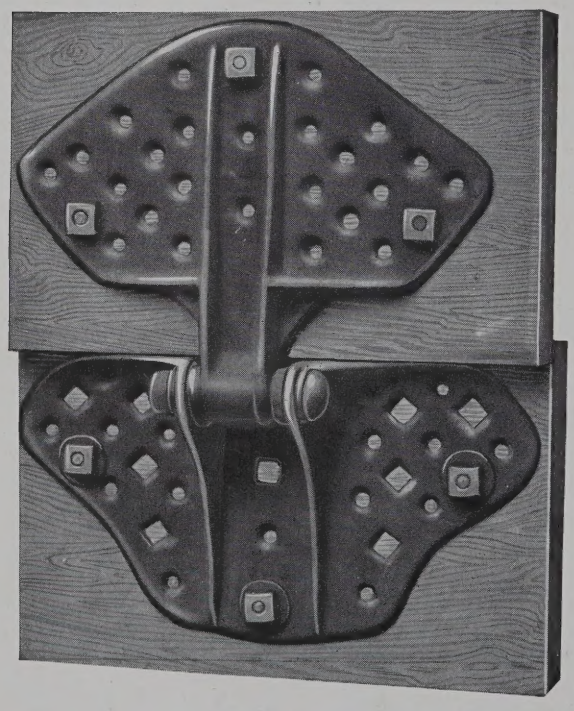
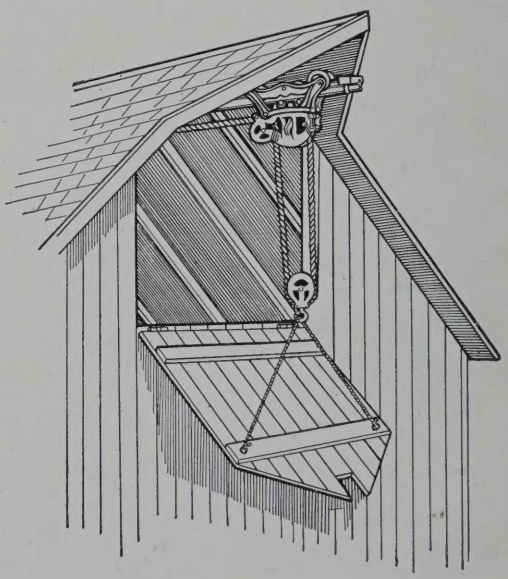


Fig. 349

The Louden Offset Hinge was designed for use on the gable hay doors on barns. The hinge is made with an offset to allow the door to lap on the siding to shut out wind and rain. It is made of certified malleable iron and is very strong. Two hinges are sufficient for all ordinary doors. For extremely large, heavy doors three hinges should be used. The hinge is made wide to insure a solid bearing on the door and to give plenty of room for bolts and screws.

The gable hay door hung with our Offset Hinges, as shown in Cut 347, is practical, cheap and easy to make. The door can be opened and closed with the hay carrier. This can be done from the ground either by hand or with a horse.



Cut 347
Louden Hay Door with Offset Hinges.

Specifications

For gable hay doors on barns.
Packed in wooden crates, 12 hinges to the crate, total weight, 36 pounds.
Made of certified malleable iron.
Hinged together with heavy bolt.
Weight (one hinge unpacked) 1¾ pounds.

Louden Improved Hay Rack Clamps—Fig. 645

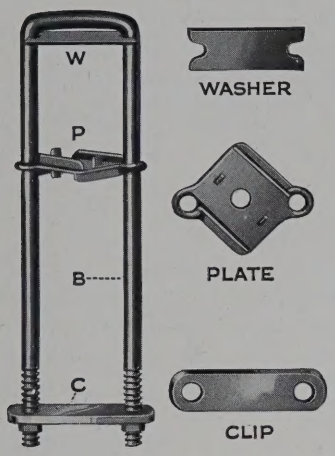
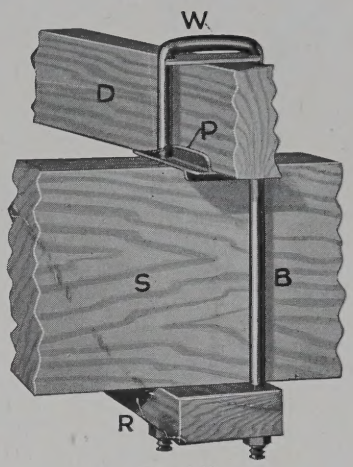


Fig. 645

Specifications

For building Hay Racks of all sizes.
U-shaped bolts are steel, ⅜-inch diameter, 12, 14, 16, and 18 inches long.
Intermediate plate made out of certified malleable iron.
Top washer and clip washer of steel.
A set of clamps consists of the following:
8 top washers, "W". 8 intermediate plates, "P." 8 lower clip plates, "C." 8 U-shaped clamp bolts, "B."
Weight, per set 12-inch bolts, 11½ pounds.
Weight, per set 14-inch bolts, 12 pounds.
Weight, per set 16-inch bolts, 12¾ pounds.
Weight, per set 18-inch bolts, 13½ pounds.

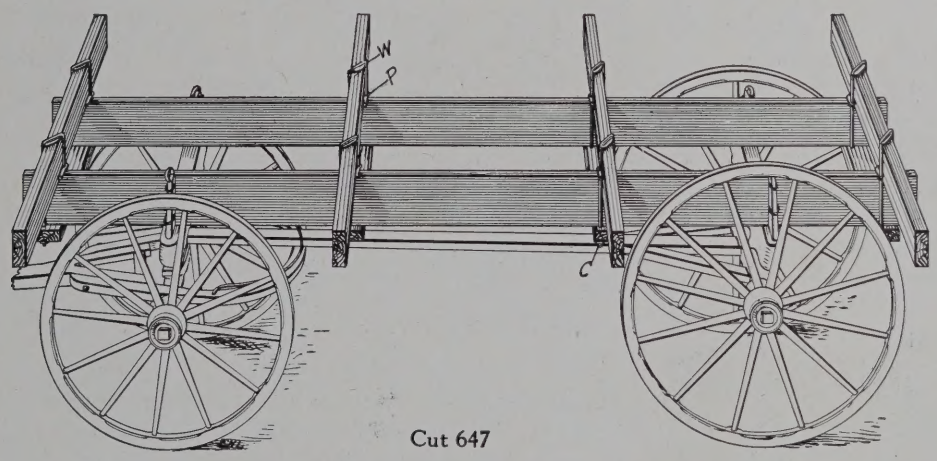
By means of the Louden Hay Rack Clamps and Plates the timbers of the rack can be put together and securely held in position without having to bore holes in the sills or upper cross pieces. The rack can be built in one-half the time and without weakening the timbers.



Cut 646

In Cut 647, is shown a hay rack under course of construction, the main and cross sills having been clamped together. The washers are placed at the points "W," the intermediate plates at "P," and the clip plates at "C." There is no easier way or better place to build a hay rack than on the running gears of a wagon. No measuring will be necessary and the rack will always fit the bolsters.

Lengthen out reach until weight of the load will be evenly divided between front and rear axles; stand main sills on edge close up to standards; place cross sills in position and clamp the two together as shown in Illustrations 646 and 647. Set upper cross pieces two inches back from ends of main sills so intermediate plates will get a firm hold on the timbers. In this way any one can build a good rack in a short time, the only tools necessary being wrench and hammer. The rack will be about one-third stronger than if built in the old way, as the sills will not be weakened by holes. The time saved will more than pay for the clamps.



Cut 647

Material Necessary for Sixteen-Foot Rack

Two pieces 2x8, 16 feet long for main sills.
One piece 2x4, 16 feet long to be cut up for bottom pieces.
Four pieces 2x4, 7 feet long for cross bars.
Two pieces 2x4, 6 feet long for front ladder.
Four pieces 2x6, 6 feet long for sides of rear wheel covering.
Four boards 1x8, 16 feet long for lengthwise pieces on sides.
One board 1x6, 12 feet long for tops of wheel coverings.
Two boards 1x12, 16 feet long for bottom of rack.

The above specifications cover material necessary for rack 7x16 feet to be used with our 14-inch clamps; but if it is desired to make a rack of different length or width the dimensions of the lumber must be changed accordingly. To build a rack with larger main or cross sills use the 16 or 18-inch clamps.

The Intermediate Plates are of certified malleable iron and have heavy flanged edges or shoulders to fit over the edges of the main sills "S," and cross pieces "D," holding them firmly in position. These plates also have lugs or projections (two above and two below), that are driven into the timbers when the clamps are drawn down tight, thus preventing all rubbing or chafing and making it impossible for the sills or cross pieces to warp and get out of line. Top Washers are made out of heavy steel and have a good, wide bearing surface to prevent them from cutting into the wood. The extra heavy steel bottom plates act as washers and prevent the bottom cross pieces from being split by severe strains and twists under heavy loads.

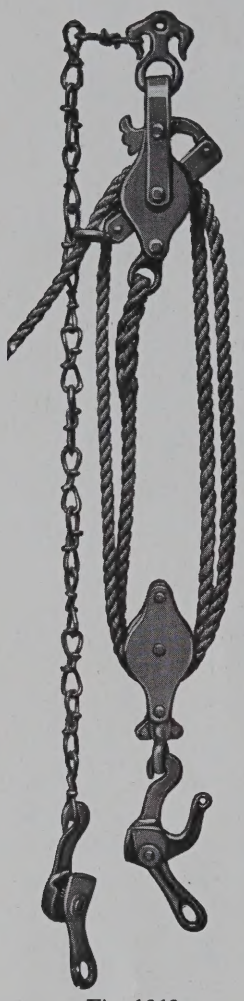


Fig. 1368
Wire Stretcher
Handy Hoist

Louden Wire Stretcher and Handy Hoist Fig. 1368

Specifications

Fitted with 16 feet of 3/8-inch sisal rope.
Weight, 5¼ pounds.
Pulley block frames, heavy steel.
All fittings certified malleable iron.

The Louden Wire Stretcher is the strongest tackle stretcher made. In stretching the wire the operator stands away from the wire, out of danger, while tightening the tension, instead of close up to it as with other stretchers.

The wire grips are fitted with raised flanges or guards which absolutely prevent wires from slipping under the eccentric grips. These grips are fitted with handle one-third longer than other stretchers, and have an offset curve, giving more convenience and greater power for setting the grip with the hand.

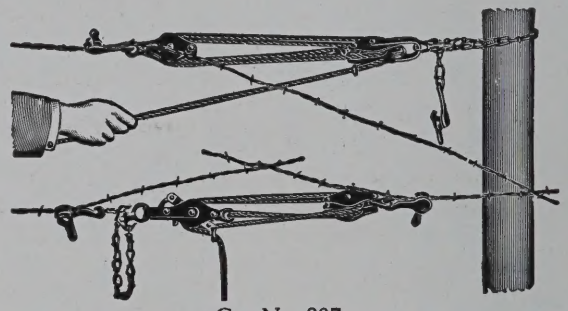
The rope grip is positive and will never slip, but will hold the wire at any tension, or a load at any height.

Easily Operated—Grips Wire Tightly

The wire grips never fail to hold. Cut 807 shows Louden's Perfect Stretcher Hoist stretching and splicing barbed wire. It is equally satisfactory for stretching woven wire. The frames of the pulley blocks are made of high-grade steel, and the fittings are the best certified malleable iron.

The iron rope sheaves are very smooth to prevent wear on the rope. They turn on special steel thimbles, insuring ease of operation and great strength. The stretcher is reeved with a full 3/8-inch rope, which is included with it.

A swivel at the end next the wire and away from the post lets the twist out of the wire but does not let the stretcher itself turn and tangle the ropes, as do stretchers having a swivel next to the post, or at both ends. This hoist has a 400-pound capacity. When in use the operator is away from the load instead of under it.



Cut No. 807

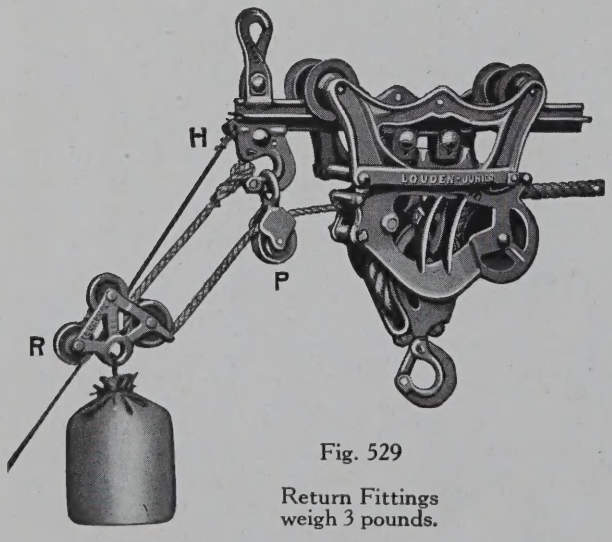


Fig. 529

Return Fittings
weigh 3 pounds.

Louden Weight Return

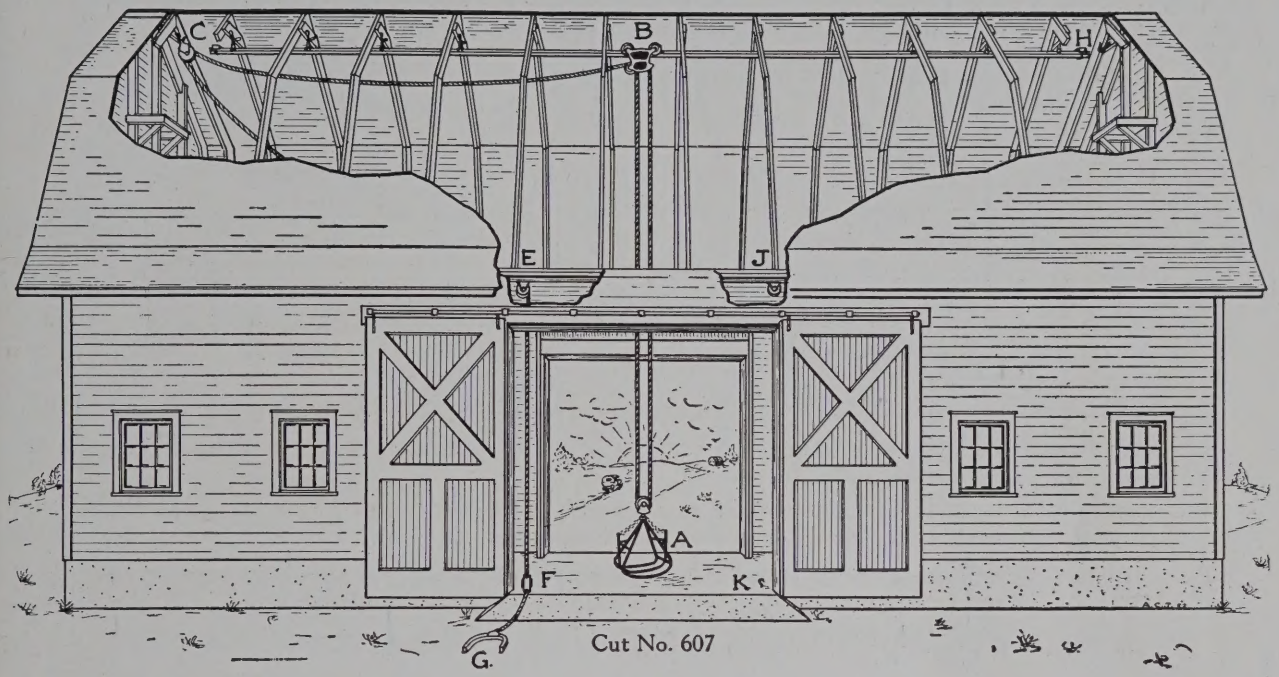
A Weight Return for returning the carrier to the trip block after the load has been deposited in the mow is desirable with all hay carriers, especially so in long or high barns.

The Weight Return brings the carrier back to the trip block promptly, and always with enough force to securely latch the carrier.

Fig. 529 shows End Weight Return attached to carrier and arranged for End Hoist barn. It shows our improved Return Pulley R on wire guy, Clamp Hook H and Pulley P. A wire guy is preferable to a rope guy.

In ordering, state kind of track used to get Hook H to fit it. A bag of sand is the best weight to use.

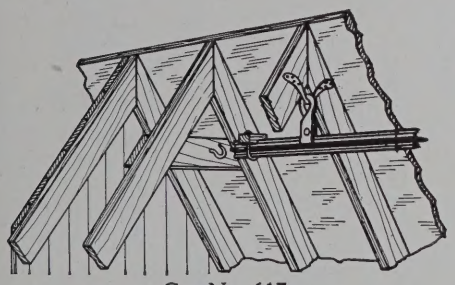
The Hay Tools Required For Different Types of Barns



Cut No. 607

Center Drive Barn

Cut 607 shows how Louden Hay Tools are generally fitted up so as to take the hay from the driveway in the center and deposit it, first in one end of the barn and then in the other. A ladder and platform at one end makes changing the pulleys easy and affords a convenience for thoroughly oiling the carrier—a thing that *should be done* several times during every haying season. The track should be 6 or 8 feet shorter than the barn. This will bring it within 3 or 4 feet of the ends of the barn, which is close enough. To make it good and strong, a hanger and bracket should be placed on each rafter, and for sling and other heavy work it is better to place them on both sides of the rafter, at the point where the hay is taken up.



Cut No. 617

A collar beam should be spiked to the second pair of rafters from each end, in which hooks are to be screwed for the Pulleys C and H, as shown in Cut 617. This will bring the ends of the track within about a foot of the pulleys as shown in the cut. The collar beams may be 2x6, or 4x4—chamfered off thin at the ends so they can be properly spiked to the rafters. When a piece 2 inches thick is used, an inch piece should be nailed on the back of the center where the screw of the hook goes through, so as to make it 3 inches thick at this place. The collar beams should be about 4 feet long with the ends cut the slant of the rafters, or long enough so the pulley attached to it will let the rope run close to, but not rub on the under side of the track.

It is a poor plan to screw the hook into one of the rafters, as shown in some hay tool catalogs, because in heavy work such as is very common now-a-days, it is liable to pull out a single rafter.

Changing from One Mow to The Other—Quick—Simple

To reverse the carrier, run the carrier into the trip lock at B, move the Pulley C to the other end of the barn at H, change pulley from E to J, and pulley from F to K. A swinging pull on the rope leading down to the fork will swivel the lower frame of the carrier around and everything is then ready to work in the opposite mow. Only 3 pulleys are required, but it is well to always have an extra pulley on hand.

Amount of Rope Needed for Center Hoist Barns

To get the length of the draft rope (See Cut 607), double the distance from A to B when a Double Draft Carrier is used, then add the distances from B to C, C to E and E to F and allow 10 to 15 feet extra for the Singletree G. When a Triple Draft Carrier is used, treble the distance from A to B and add to it the distance from B to the Singletree G, and then add the length of the hay rack for Slings.

Specifications for Hay Unloading Outfit for Center Hoist Barn, 60 Feet Long

Fork Outfit	Fig.	Page
1 Louden Senior Fork Carrier	1100	8
54 feet Double Bead Steel Track	571	30
28 Standard Two-part Hangers	498	30
28 Standard Rafter Brackets	424	30
1 Standard 6-tine Grapple Fork	351	36
3 High-grade Knot Pulleys	467	48
6 Pulley Hooks	389	50
*1 Hoisting Singletree	344	51
*1 Lightning Rope Hitch	367	51

Sling Outfit	Fig.	Page
1 Cross Draft Hay Carrier	817	20
54 Feet Double Bead Steel Track	571	30
28 Standard Two-part Hangers	498	30
28 Standard Rafter Brackets	424	30
3 Carry-All Hay Slings	984	42
7 High-grade Knot Pulleys	467	48
7 Pulley Hooks	389	50
*2 Hoisting Singletrees	344	51
*1 Rope Spreader for Same	345	51
*1 Lightning Rope Hitch	367	51

The last few items marked * may be omitted if desired, but we urge our customers to include them with the outfit as they are time and labor savers.

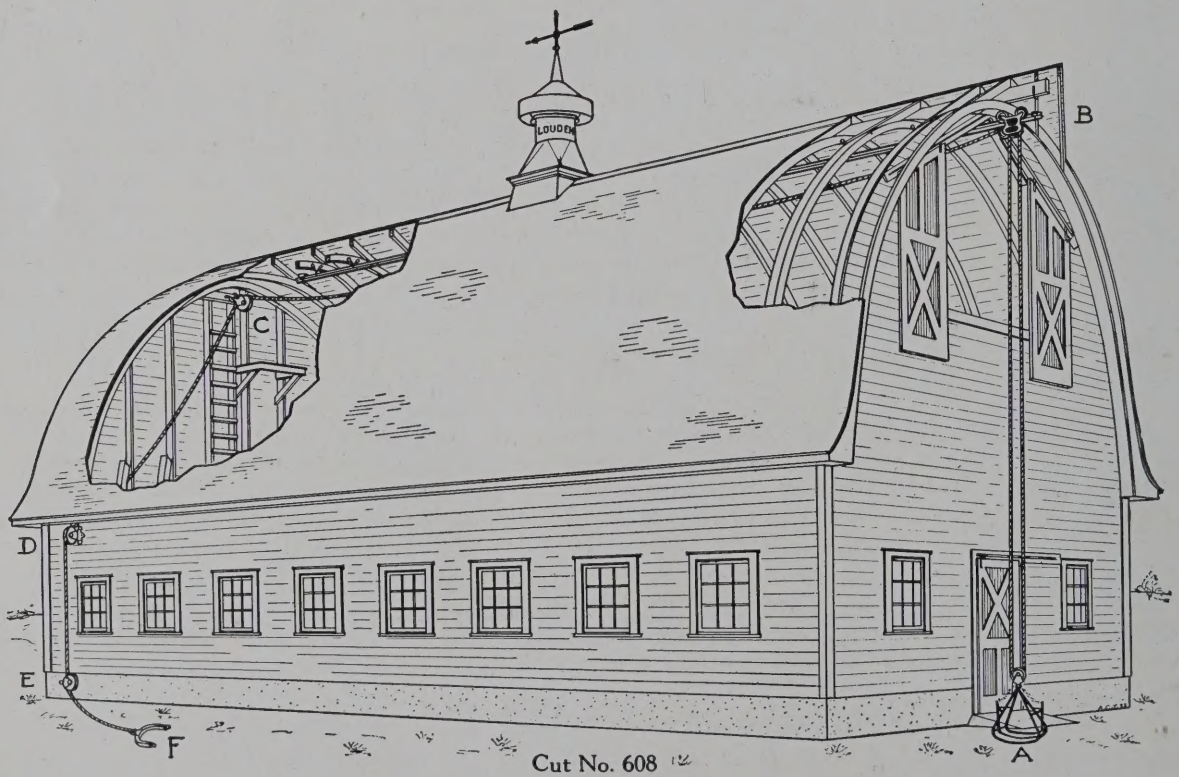
If desired Louden Junior Fork Carrier, Fig. 430, shown on page 6, may be substituted for the Louden Senior.

We recommend the 6-tine Balance Grapple Fork as listed for all around work in all kinds of hay. Any other fork may be substituted if desired.

If a Wood Track outfit is wanted substitute a Louden Junior Wood Track Carrier, Fig. 441, page 11. Also substitute Wood Track Hanger Hooks, Fig. 780, Page 31 for the Steel Track Hangers.

If desired, any other type of slings may be substituted for the Carry-All above specified.

Hay Tools Needed For An End Hoist Barn



Cut No. 608

Cut 608 shows a barn arranged to take the hay in at one end. The Hay Door which is cut high up in the gable, should be large enough to take in the largest forkful or sling load without pulling off the loose

hay to make litterings. When there is room it is well to make the door 8 to 10 feet wide and 10 to 12 feet high for a fork, and 10 to 12 feet wide and 12 to 15 feet high for slings. Of course, doors a little smaller will do in a way, but the verdict of every one is "the bigger the better."

The track should extend out from three to four feet, according to the size of the barn and the door and whether a fork or slings are to be used. Generally the track should be about the same length as the barn, a pulley collar being used and the back end of the track running within three or four feet of the back end of the barn, as in Cut 607. The extension support for the track should be good and strong according to the loads it has to carry and should extend out as far as the track, and back into the barn from two to four rafters, and be securely supported therein.

A Handy Hay Door For End Hoist Barns

By using Louden Offset Hinges the hay door will effectually turn water at the bottom. It can be easily opened and closed with the carrier by removing the fork or sling and hitching the pulley to the looped rope secured by eye bolts to the door. A large door should have three hinges. Sliding Hay Doors can also be used and are exceedingly convenient and very attractive in appearance. A Bracket Pulley Holder should be used at D. The End Hoist Barn requires three Draft Pulleys. To get the length of Draft Rope double the distance A to B when a Double Draft Carrier is used, then the distance from B around by C and D to E, adding ten or fifteen feet more to the singletree, F. For a Triple Draft Carrier treble the distance from A to B, and add the other distances as before, and the length of the hay rack for slings.

Specifications for Hay Unloading Outfit for End Hoist Barn 50 Feet Long

Fork Outfit	Fig.	Page
1 Louden Senior Fork Carrier	1100	8
50 Feet Double Bead Steel Track	571	30
26 Standard Two-part Hangers	498	30
26 Louden Rafter Brackets	424	30
1 Standard 6-tine Grapple Fork	351	36
3 High-grade 6-inch Draft Pulleys	468	48
1 Louden Bracket Pulley Holder	348	52
2 Steel Pulley Hooks	389	50
*1 Hoisting Singletree	344	51
*1 Lightning Rope Hitch	367	51
Substitutions may be made as listed below.		

Sling Outfit	Fig.	Page
1 Carry-All Carrier	1306	12
50 Feet Double Bead Steel Track	571	30
26 Standard Two-part Hangers	498	30
26 Standard Rafter Brackets	424	30
3 Three-rope Slings	600	41
3 High-grade Knot Pulleys	467	48
1 Bracket Pulley Holder	348	52
2 Pulley Hooks	389	50
*2 Hoisting Singletrees	344	51
*1 Rope Spreader Attachment	345	51
*1 Lightning Rope Hitch	367	51

In addition, three hook bolts or three ridge pole brackets, depending on the type of construction of the projection at the end of the barn, should be specified and hangers of sufficient length to attach the track.

The last few items marked* may be omitted if desired, but we urge our customers to include them with the outfit as they are time and labor savers.

If desired the Louden Junior Fork Carrier, Fig. 430, illustrated on page 6, will be substituted for the Senior Carrier. Other hay forks may be substituted but we recommend the Grapple Fork for all kinds of hay.

Three slings, the number ordinarily used on each wagon, are specified. More slings should be ordered for more wagons. If desired Easy Lock Carrier, Fig. 1307, page 16, may be substituted for the Carry-All.

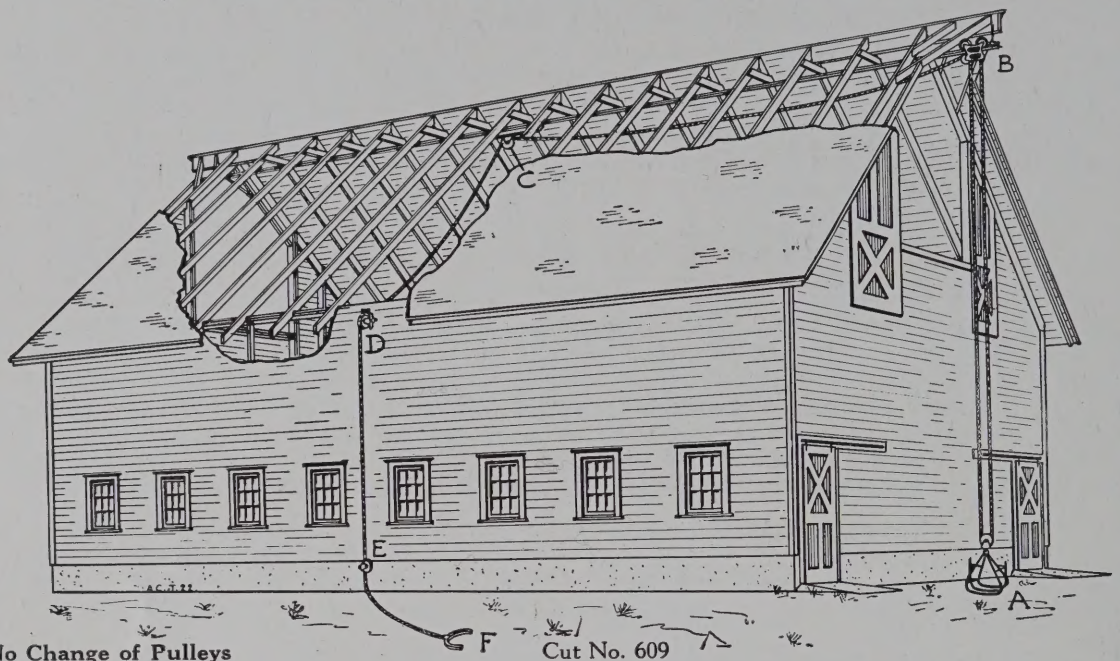
A Word About The Size and Grade Of Draft Rope

Many persons think they should use not less than 1-inch rope on a Hay Carrier. This is a mistake. Use the best grade of manilla rope and never use it heavier than $\frac{7}{8}$-inch in diameter and $\frac{3}{4}$-inch diameter rope is better. Do not be persuaded to use either a large or cheap grade of rope. Cheap rope is usually hard twisted and kinks badly. In our fifty-six years' experience with Hay Carriers we have learned that the $\frac{3}{4}$-inch manilla rope is the best size to use and in no case should larger diameter than $\frac{7}{8}$-inch be used. Pulleys used with Hay Carriers are intended for these sizes of rope and with larger will not work so well.

An inch rope should have not less than a 10-inch pulley, and when used on a smaller pulley the bend will be so short that the strands will wear themselves out rubbing on each other, besides it will cost nearly, if not fully, twice as much as three-quarter rope. According to government tests the following are the approximate weights and strengths of new manilla rope:

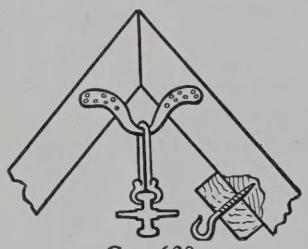
	Pounds
Three-eighths-inch trip rope	1,275
Half-inch rope, 12½ feet weigh 1 pound; strength	1,760
Five-eighths rope, 7½ feet weigh 1 pound; strength	3,140
Three-quarter rope, 6 feet weigh 1 pound; strength	3,970
Seven-eighths rope, 4½ feet weigh 1 pound; strength	4,900
One-inch rope, 3½ feet weigh 1 pound; strength	7,050

Hay Tools For Double End Hoist Barns



No Change of Pulleys — Cut No. 609

Cut No. 609 represents a long barn arranged to take the hay in at each end. It has hay door and track extensions at each end. Track should be from 4 to 8 feet longer than the barn to provide for the extensions. The cut shows Carrier and rope arranged to take hay in at the right hand end.



Cut 628

When a Swivel Carrier is used it is quickly and easily reversed by running the Carrier along the track from one end to the other and simply swiveling it around with the trip cord of the fork or sling. No change whatever of the rope or pulleys is required. This outfit requires three Draft Pulleys and is good for a barn 80 to 100 feet long.

A Side Collar Beam is spiked to two or more of the rafters at one side of the track near the middle of the barn at C (more plainly shown by Cut No. 628), so that the Carrier can run freely by it on the track. A hook for the pulley is screwed into this collar beam and the rope is run down to the side of the barn where it passes over the Pulley D hung on our Bracket Pulley Holder and then down to the Pulley E and Singletree F. A swivel carrier should be used and a track stop is required at each end.

To get the length of draft rope, double the distance A to B and then add the distances B to C, C to D, and D to E with 10 or 15 feet from Pulley E to Singletree F. For a Triple Draft Carrier, treble the distance A to B, adding the other distance to Singletree F and the length of the hay rack for slings.

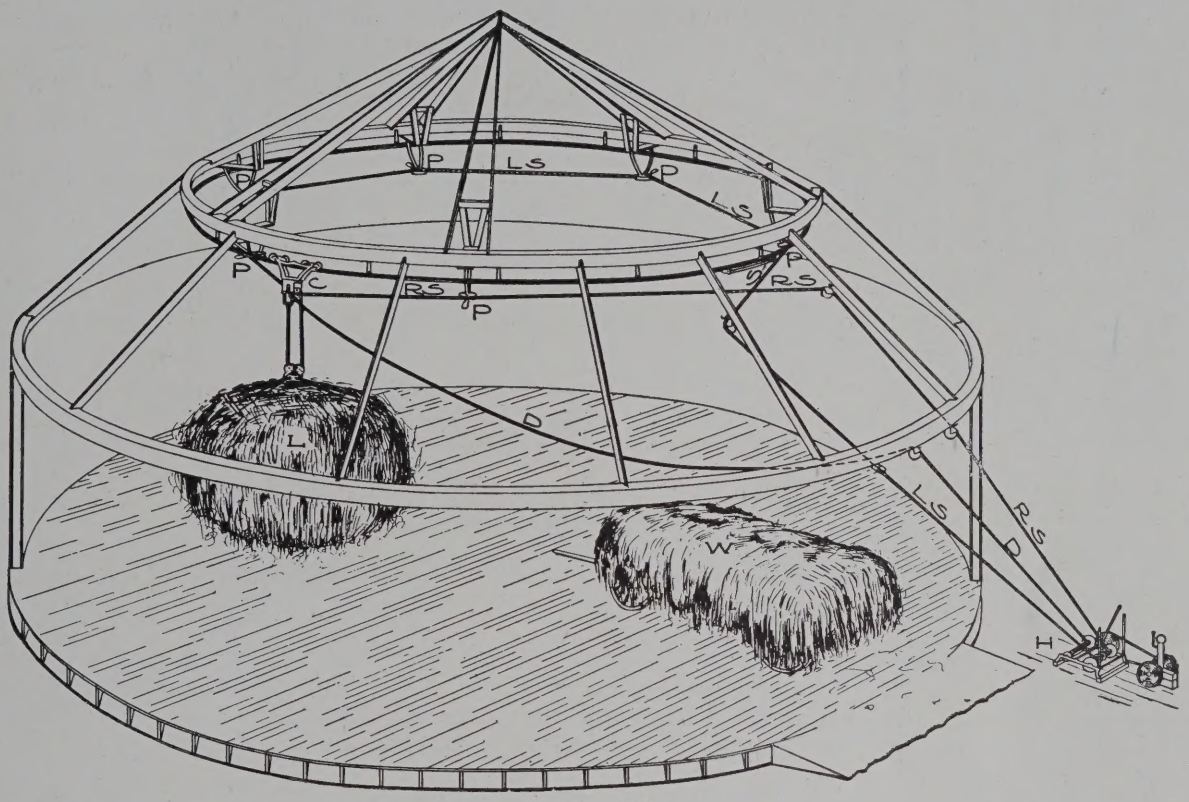
Specifications for Hay Unloading Outfit for Double End Hoist Barn 80 Feet Long

Fork Outfit	Fig.	Page
1 Louden Senior Steel Track Carrier	1100	8
86 Feet Double Beaded Steel Track	571	30
44 Standard Two-part Steel Track Hangers	498	30
44 Standard Rafter Brackets	424	30
1 Standard 6-tine Grapple Fork	351	36
3 High-grade 6-inch Draft Pulleys	468	48
1 Steel Floor Pulley Hook	389	50
1 Steel Rafter Pulley Hook	390	50
1 Louden Bracket Pulley Holder	348	52
1 Louden Hoisting Singletree	344	51
1 Louden Lightning Rope Hitch	367	51
1 Extra Track Stop for Carrier	1123	8

Sling Outfit	Fig.	Page
1 Carry-All Sling Carrier	1306	12
88 Feet Double Bead Steel Track	571	30
45 Standard Two-part Track Hangers	498	30
45 Standard Rafter Brackets	424	30
3 Carry-All Slings	984	42
3 High-grade 6-inch Draft Pulleys	468	48
1 Steel Floor Pulley Hook	389	50
1 Steel Rafter Pulley Hook	390	50
2 Louden Hoisting Singletrees	344	51
1 Rope Spreader for same	345	51
1 Louden Bracket Pulley Holder	348	52
1 Louden Lightning Rope Hitch	367	51
1 Extra Track Stop for Carrier	1123	12

If desired, substitutions can be made as set forth on previous pages, except that with this plan a Swivel Carrier must be used. If more than one wagon is to be used put in additional slings.

Hay Tools Needed For Round Barns



Cut No. 1206

Cut No. 1206 illustrates the common arrangement of track, guide pulleys, pulleys and ropes in a round barn and using gasoline engine and Louden Triple Drum Power Hoist for unloading. Also using the Louden Special Cross Draft Hay Carrier for Round Barn (see Fig. 1104, page 25).

The Draft rope D, on the Special Cross Draft Round Barn Carrier goes directly from the carrier to the hoist (or to the horse, if horse power is used). The draft rope D is used to elevate the load only and is *not* used to pull the carrier along the track. The carrier's automatic rope lock catches and holds the load at any height. As soon as the load is high enough to pass over hay already in the mow, the tension on the draft rope is released and the lock in the carrier will catch and hold the load suspended.

The carrier is then pulled along the track by means of the shift ropes LS and RS. In the illustration the ropes are arranged to carry the load to the left hand side of the wagon. The shift rope LS passes around parallel with the circle track and is held in place by the guide pulleys P and is finally carried through stationary pulleys to the left hand shift drum on the hoist. This shift rope is used for pulling the carrier to the left. When the sling load is tripped in the mow, the right hand shift rope RS is used to bring the carrier back to the release block S.

When the sling load is tripped in the mow, the lock in the carrier does not release and the slings will not settle down until the carrier is brought back to the release block S. When the carrier strikes the release block, the rope lock is released and the slings come down to the wagon easily.

To reverse the carrier to carry the load to the right hand side, the position of the right and left shift ropes would be reversed and the right hand shift rope RS would be carried around in the guide pulleys parallel with the track.

In the illustration the hoist is shown just outside the building. The hoist can be located at any convenient place but preferably at some point where the man operating the hoist can watch the load of hay as it is being lifted and carried along the track.

In operating the rig with horse power, the arrangement of ropes would be practically as shown, except a weight would be attached to the return shift rope as in a rectangular barn. (See Cut 822, page 21.)

Hay Tools For Round Barns — Continued

Specifications for Hay Sling Unloading Outfit for Round Barn with Circle Track 30 Feet in Diameter and Using Engine Power

	Fig.	Page
1 Special Round Barn Hay Carrier	1104	25
94 ft. Double Bead Steel Track (Bent to 30-ft. diameter circle)	571	30
48 5-inch Link Track Hangers	1066	211
48 Beam Brackets	725	31
3 Carry-All Hay Slings	984	42
6 Guide Pulleys	1135	27
5 High-Grade Knot Pulleys	467	48
5 Floor Pulley Hooks	389	50
1 Triple Drum Hoist	1132	35

Three slings are specified. This is the number of slings commonly used on one wagon. For more wagons more slings should be specified.

As a rule, round barns have large hay storage capacity and heavy equipment is desired for handling heavy loads. For that reason, we specify our best sling, the Carry-All. Any sling can be used with this rig and substitutions can be made to meet the ideas of the purchaser.

Specifications for Hay Fork Unloading Outfit for Round Barn having Circle Track 30 feet in Diameter and Using Horse Power

	Fig.	Page
1 Special Round Barn Hay Carrier	1104	25
94 ft. Double Bead Steel Track	571	30
48 5-inch Link Track Hangers	1066	211
48 Beam Brackets	725	31
1 Standard 6-tine Grapple Fork	351	36
6 Guide Pulleys	1135	27
5 High-Grade Knot Pulleys	467	48
5 Floor Pulley Hooks	389	50
2 Hoisting Singletrees	344	51
1 Rope Spreader	345	51
1 Lightning Rope Hitch	367	51

Other hay forks can be used, but we recommend the Grapple Fork for use with this outfit.

In the above lists, we specify Beam Bracket Fig. 725, for supporting track under purlin plate. If track is to be suspended directly from rafters, Side Rafter Bracket Fig. 675, page 31, should be specified.

Putting Up Hay Carrier Tracks

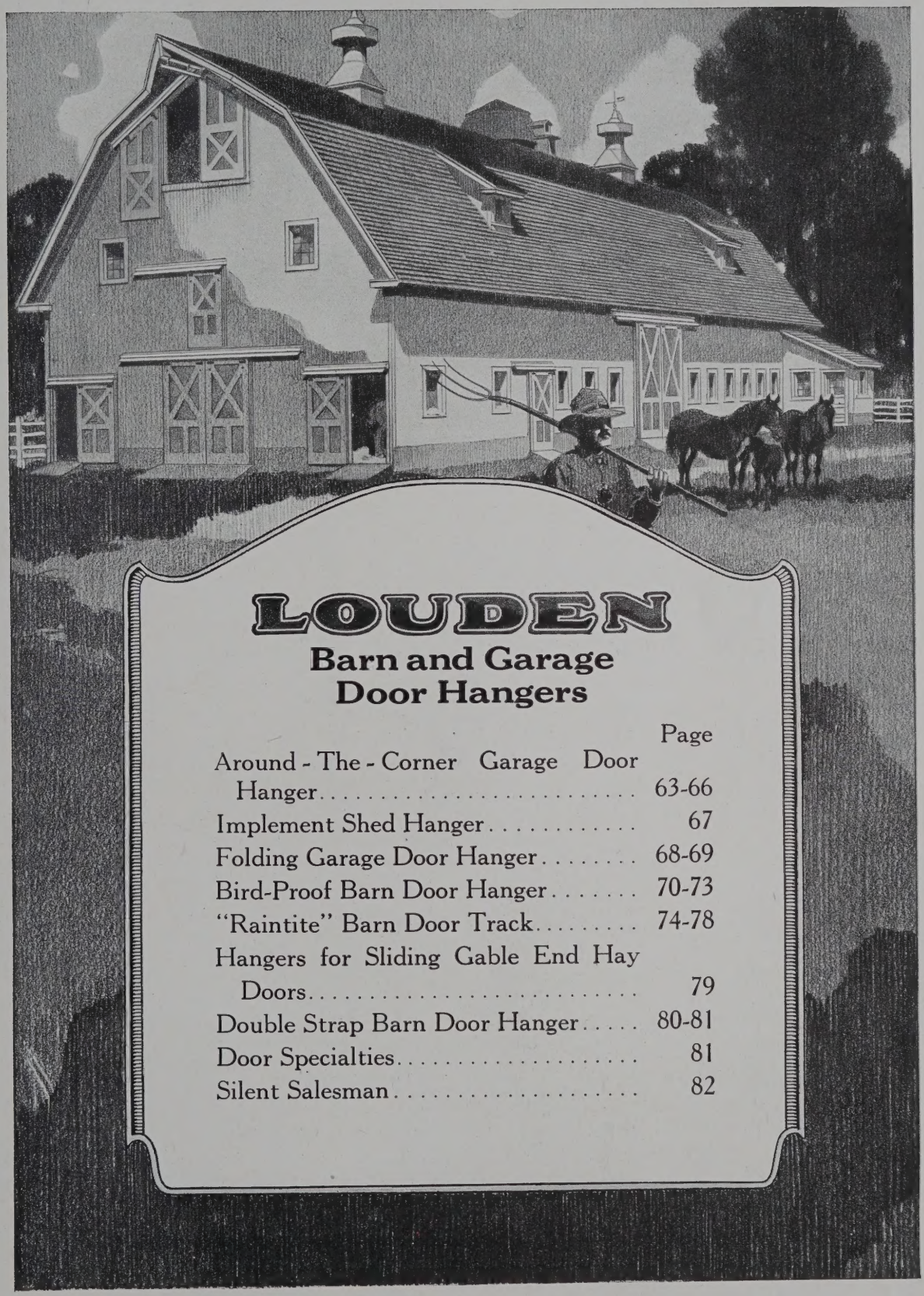
While a barn is being built and while the shingles or sheeting are within a couple of feet of the comb of the roof, is the best time to install a Hay Carrier Track. At this time it is an easy matter to do the work as the sheeting forms all the scaffold necessary. To install a Hay Carrier Track after a barn is finished means doing the work from below by scaffold or ladder, depending on the height of the barn.

The track may be hung perfectly level or it may be given a slight incline, making it lower at the point where the track stop is attached and the hay is elevated. The track should always be hung straight and true, and close up to the peak of the barn, but allowing room enough below rafters for the Carrier to run freely. To do this stretch a line from one end of the barn to the other immediately below the peak of the rafters and nail the Rafter Brackets to the rafters in a straight line.

The track should be taken up in sections and hung to the brackets and then spliced together. The Brackets and Track Hangers which support the track may be placed 4 feet apart for light work, but it is better to have a support from every rafter, and for heavy work a hanger and bracket should be put on each side of the rafters where the hay is taken up.

The bolts in the Hangers and Splice Clamps should be drawn up as tight as possible with a wrench, then strike the head of the bolt with a hammer so as to set it, and tighten up the nuts again. When this is done they will not get loose.

If the hay is to be taken in at end of barn, the track should be extended out 2½ to 3 feet when Fork is used and 4 feet when Slings are used. In case the track is installed before the roof is finished, the best plan is to use a good 2x6 or 4x6 long enough to extend out as far as necessary and back in the barn to the third or fourth rafter. Let this extend between the rafters the same as a ridge pole. On this extension support or ridge pole, use our Ridge Pole Brackets.



LOUDEN

Barn and Garage Door Hangers

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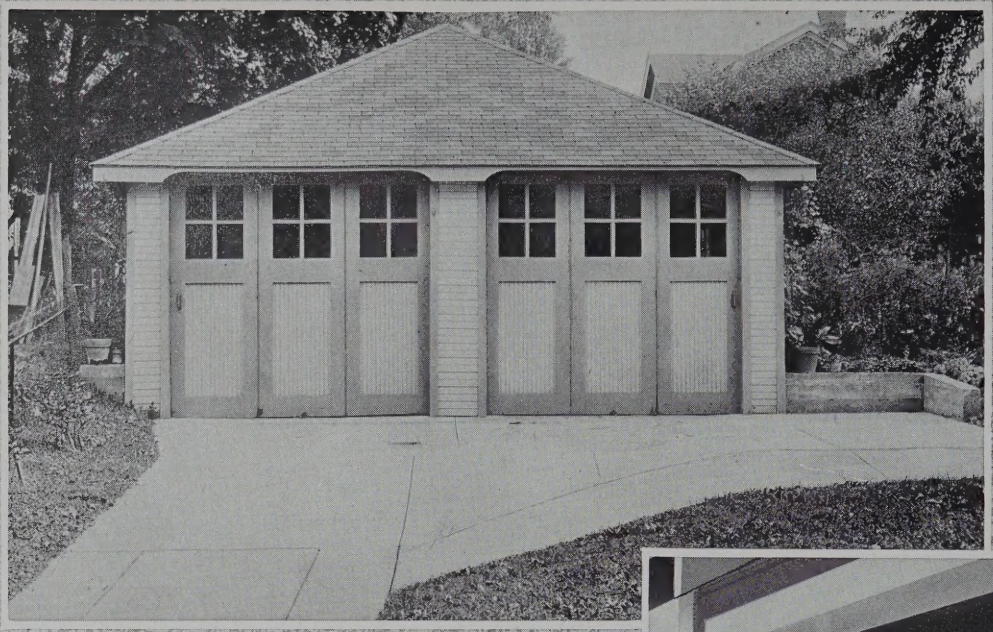
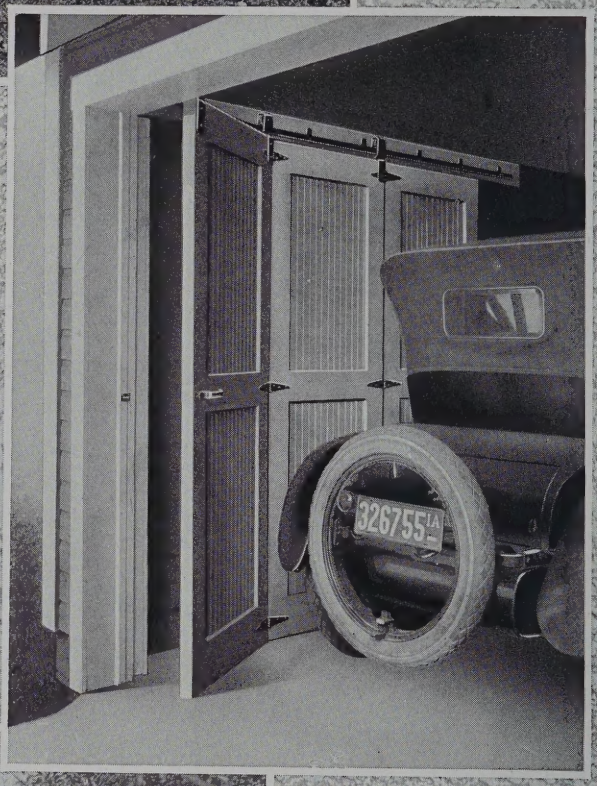


Louden Around-the- Corner Garage Door Hangers on Garage Owned By Mr. L. H. Smart, Cincinnati, Ohio



Door Hugs Corner Closely in Opening Needs But a Few Inches of Clearance Behind Car to Close.

Doors are easily Opened When Hung on Louden Around-the-Corner Hangers

Louden Around-The-Corner Garage Door Hanger Fig. 1273

Specifications

A set of Louden Around-The-Corner Garage Door Hangers consists of sufficient track, with supporting brackets riveted on, for door openings 8, 10 or 12 feet wide, together with following fittings:

3 swivel-jointed, hooded trolleys, with roller bearing track wheels. Always roll easily; cannot jump the track. Attached to door by two bolts.

6 heavy 6-inch strap hinges.

2 heavy well-shaped door handles.

2 special floor stay rollers to guide the door and hold it in place at the bottom.

1 wall stay roller, bolted to outside bottom edge of door to hold it away from side wall when open and make it roll easily when in operation.

1 hasp and staple. Length of hasp, 7 inches. Width, 2 inches.

6 dozen ¾-inch screws for attaching hinges, handles, hasp and stay rollers.

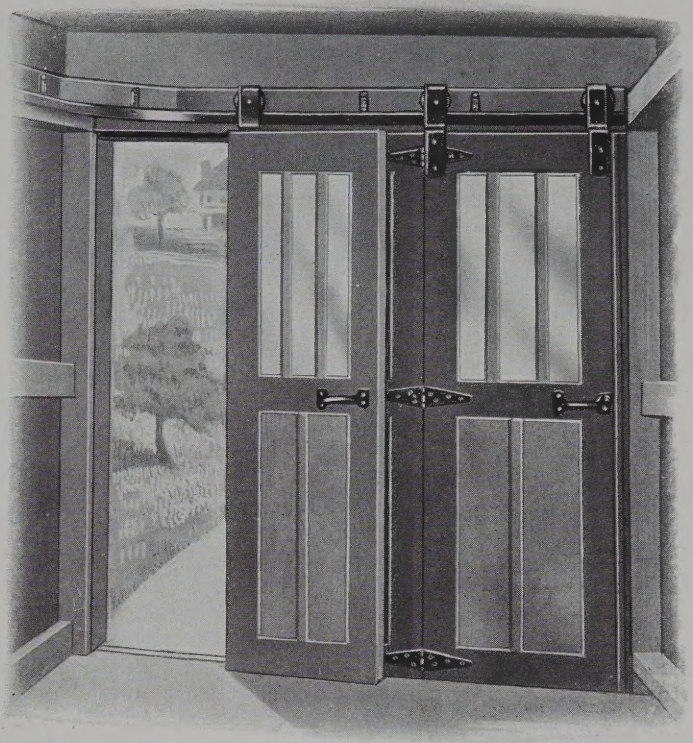
½ lb. barbed chisel point nails for putting up track.

Weight, track, 1 pound per foot; fittings, 15 lbs.

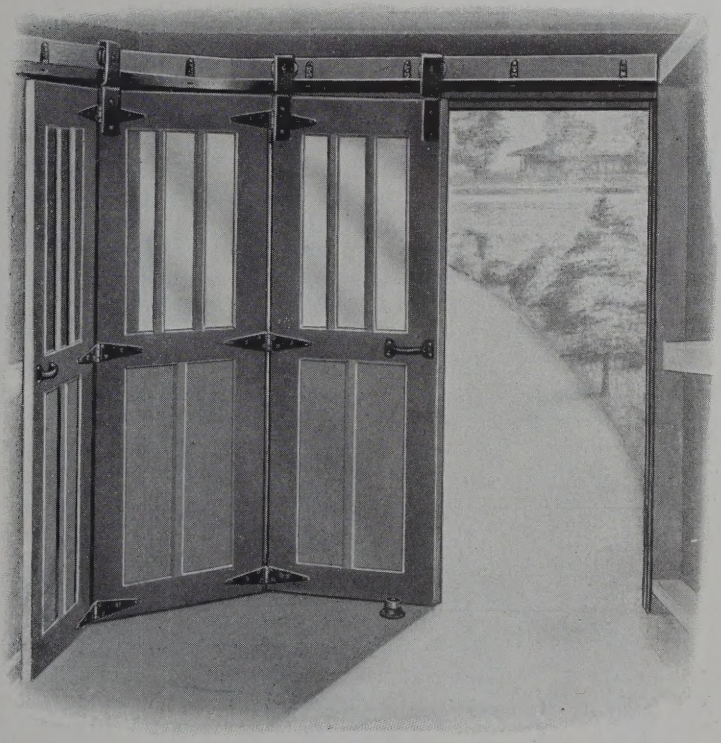
All fittings packed in a substantial box. Track bundled for different width openings.

If desired the steel corner bracket for attaching the curved portion of the track to, can be furnished with each set at an additional cost.

Installation. Full directions are furnished with each outfit. Any carpenter can build door and hang properly. Track comes in straight sections which are easily bent to fit the building



A foot entrance door for convenience.



Door moves around inside corner in opening.

Saves Garage Space

This is without doubt the handiest means of hanging a garage door ever devised. Practically no space is wasted either inside or outside the building. It is neat. It rolls so smoothly that a child can open and close it easily. Wind cannot whip it open and shut, smashing the lamps or otherwise damaging the car, as is often the case with swinging doors. The door being made in three sections does not cut off a big corner when being opened—requires but a few inches of clearance to close.

With the Louden Around-The-Corner Garage Door Hanger the entire end of the garage can be used for the door opening. It isn't necessary to make the building three or four feet wider and longer than the car requires—such as is the case with ordinary garage doors that operate on the interior.

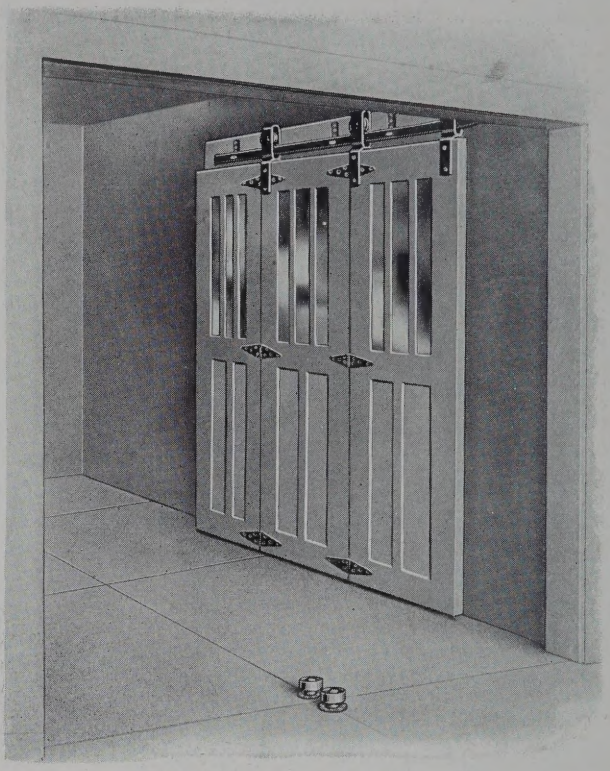
It isn't necessary to open the whole door for walking in and out or to build a special small door for that purpose. The Louden foot-door is an exceptionally convenient feature that can be had with no other hanger.

Louden Around-The-Corner Hanger — Continued

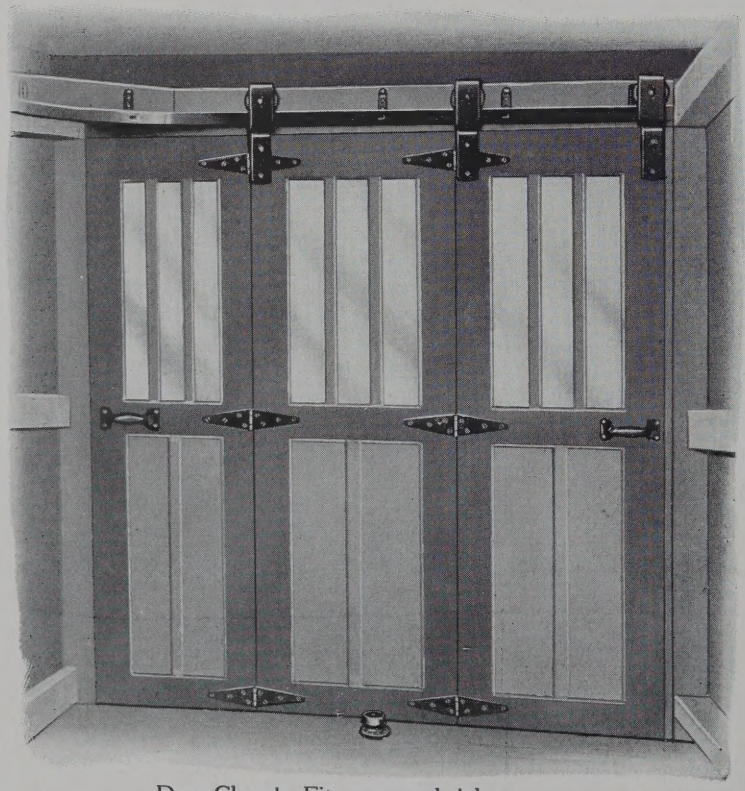
The track for the Around-The-Corner Garage Door Hanger is hung inside the door opening, thoroughly protected from the weather. It is curved at the corner and extends along the adjoining wall. The door is hinged in three parts, takes up but little room in turning the corner and lies flat against the inside wall, entirely out of the way, when open.

The roller bearing trolleys are swiveled at the point where they connect with the door straps. They are attached to two sections of the door only, the third being free to swing like an ordinary hinged door for foot entrance. The door is held to its place at the bottom by two stay rollers, screwed to the floor. A third stay roller, attached to the door itself, prevents its rubbing or binding on the side wall.

In winter when snow is deep and drifted it is a tedious job to open ordinary doors which fold together on the outside. Then is when the Around-The-Corner Door can be fully appreciated—no snow to shovel away—no pushing and tugging to get the door open. It is always as simple and easy to go into a Louden Garage as into the front door of your home—just open the swinging foot door and walk in. To take out the car, simply slide the door around the inside corner. The Louden Around-The-Corner Hanger is the advanced stage in garage door construction.



Door Open—Against inside wall.



Door Closed—Fits snug and tight.

Easy To Install Low In Cost

The inexpensiveness of the Louden Around-The-Corner Garage Door Hanger is due to its extreme simplicity. It is nicely designed and neat in appearance, but nothing is added merely for decoration. The parts are few. There is no complicated mechanism to get out of order. It is built for service.

These features, and its elimination of all garage door inconveniences and disadvantages, have made the fast-selling Louden Around-The-Corner Garage Door Hanger the most popular and satisfactory hanger on the market.

In all views of the Louden Around-The-Corner Garage Door Hanger illustrated on these pages, the wooden brace across the inside corner to which the curved portion of the track is attached, is shown. (See page 66 for details.) However, at a small additional cost the steel corner brace illustrated on the following page, can be furnished for use if desired, instead of this wooden construction.

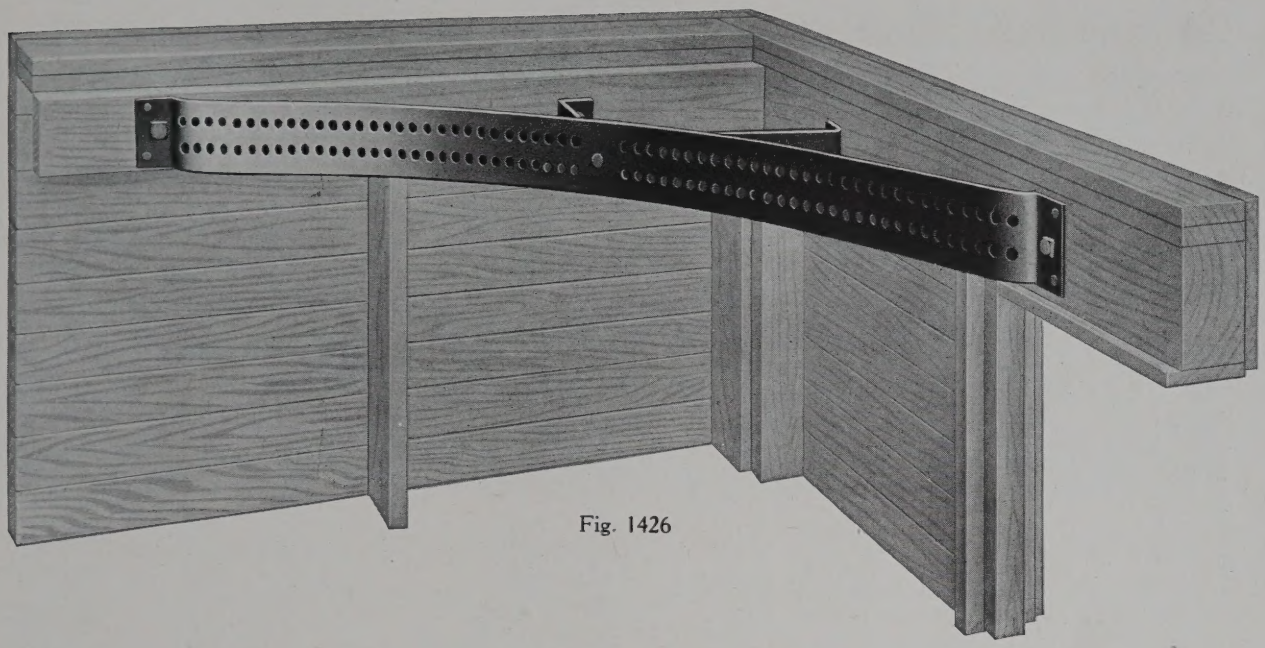


Fig. 1426

Steel Brace For Forming Curve Of Track At Corner

Specifications

Distance from inside corner of garage to either end of Steel Brace, 25 inches.

Curved steel track support is 2½ inches wide with double row of track bolt holes running full length. Holes are spaced close enough together so there will always be bolt holes opposite each track support regardless of where it may come.

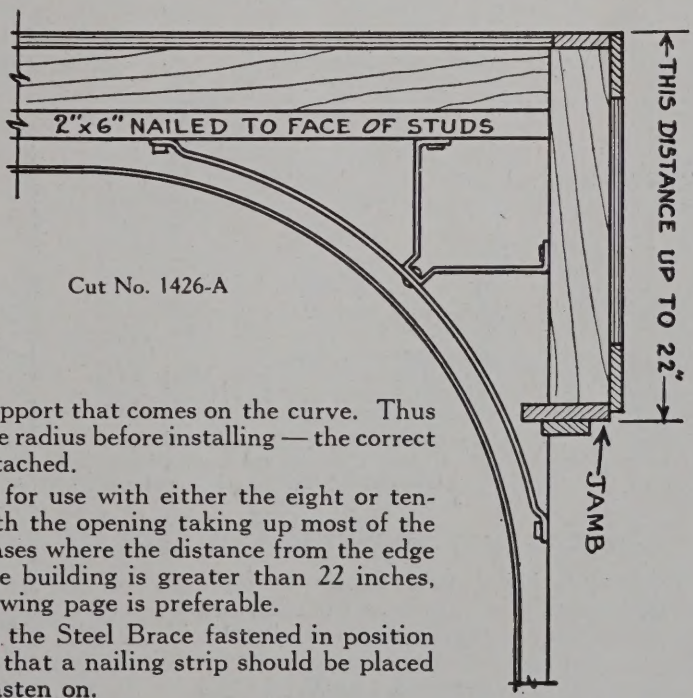
Curve is braced to each wall by 1¼-inch bar steel braces.

Ends of Brace are fastened to walls by heavy lag screws.

2 Lag Screws and 6 Track Bolts are regularly furnished as a part of each complete Steel Brace. Weight of complete Brace with bolts, 7 pounds.

Note: This Steel Brace is not included with the Louden Around-The-Corner Door Hanger set but is an extra furnished only on special order.

Complete directions for installing doors of all sizes and for putting up the track, are included with every set of Louden Around-The-Corner Garage Door Hangers. Proper wood bracing for the support of the curve is perfectly simple under these directions but for those who prefer it we furnish the one piece Steel Brace, Fig. 1426, illustrated above at a small additional cost. It may be used in place of the wood bracing shown on page 66 to form the curve and support the track.



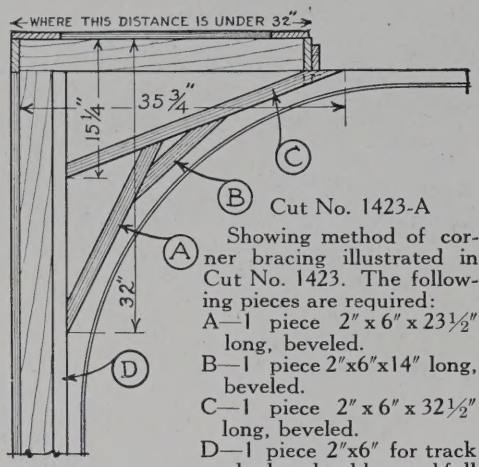
Cut No. 1426-A

This Steel Brace is simply spiked into the corner—fastened to the walls at each end with lag screws and the track is then bolted to it, two bolts being used at each track support that comes on the curve. Thus it is not necessary to bend the track to any definite radius before installing — the correct curve is automatically formed as the track is attached.

The Steel Brace is particularly well adapted for use with either the eight or ten-foot door opening built in the ordinary way with the opening taking up most of the end of the garage. However, in all extreme cases where the distance from the edge of the opening or door jamb to the corner of the building is greater than 22 inches, the method of wood bracing shown on the following page is preferable.

Cut No. 1426-A is a plan view illustrating the Steel Brace fastened in position in the corner of the garage. Note particularly that a nailing strip should be placed on the studs of the side wall for the brace to fasten on.

Manner of Placing Wooden Braces to Form Corner Curve of Track in Different Types of Garages

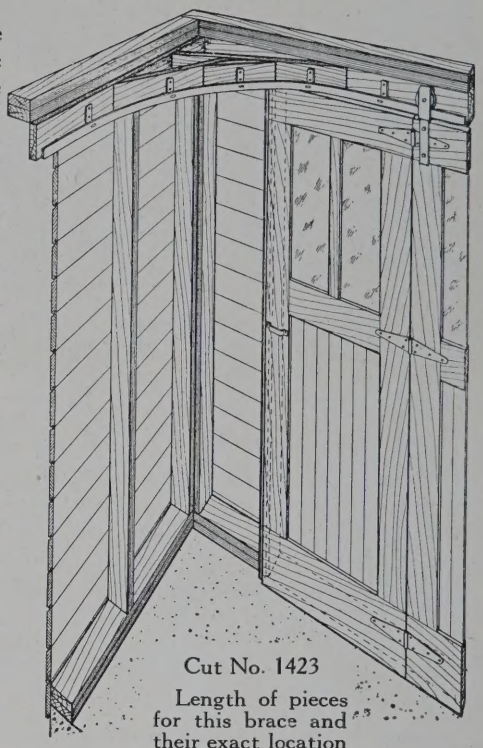


Cut No. 1423-A

Showing method of corner bracing illustrated in Cut No. 1423. The following pieces are required:

A—1 piece 2" x 6" x 23½" long, beveled.
B—1 piece 2"x6"x14" long, beveled.
C—1 piece 2" x 6" x 32½" long, beveled.
D—1 piece 2"x6" for track plank—should extend full length of garage.

There are cases where customers desire to use wood braces across the inside corner instead of the steel brace, to support the curve of the Louden Garage Door Hanger Track. Therefore the two simple methods shown by Cuts 1423 and 1424 illustrate how this can be done easily and assure perfect operation of the doors. Which method to use depends on the distance from the side of your garage to the edge of door opening. In some garages the opening for the doors extends entirely across the end. In others there is an end wall running from the corner out to the opening. In other words the distance from the edge of the door opening to side of garage varies from 8 inches to as much as 4 feet.

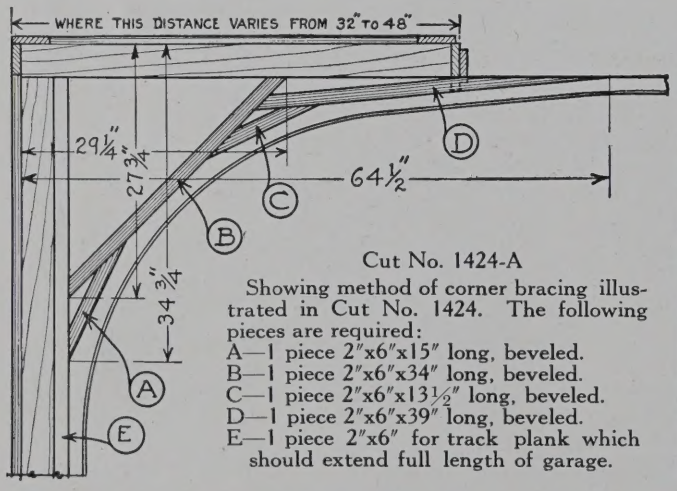


Cut No. 1423

Length of pieces for this brace and their exact location shown in Cut No. 1423-A.

Use Bracing Shown in Cut 1423

When the distance from side of garage to edge of door opening is less than 32 inches use the method illustrated in Cut No. 1423. The size and length of the brace timbers and their exact location is plainly shown in Cut No. 1423-A.



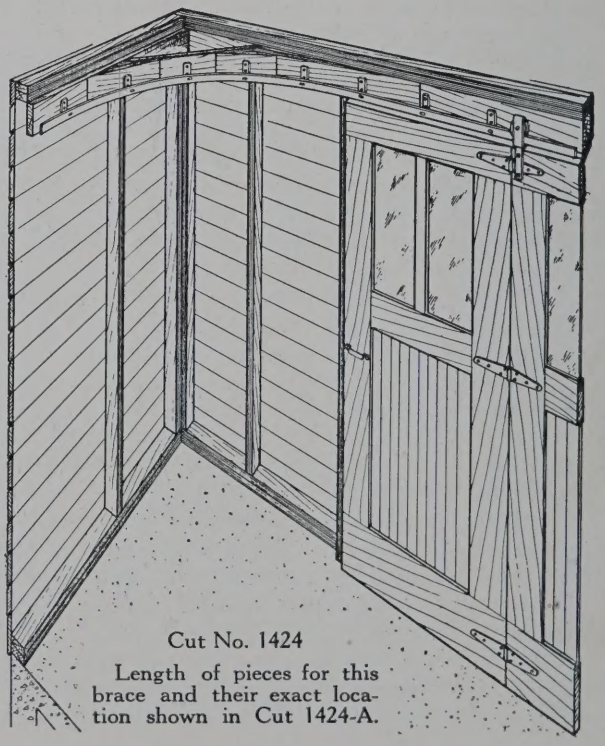
Cut No. 1424-A

Showing method of corner bracing illustrated in Cut No. 1424. The following pieces are required:

A—1 piece 2"x6"x15" long, beveled.
B—1 piece 2"x6"x34" long, beveled.
C—1 piece 2"x6"x13½" long, beveled.
D—1 piece 2"x6"x39" long, beveled.
E—1 piece 2"x6" for track plank which should extend full length of garage.

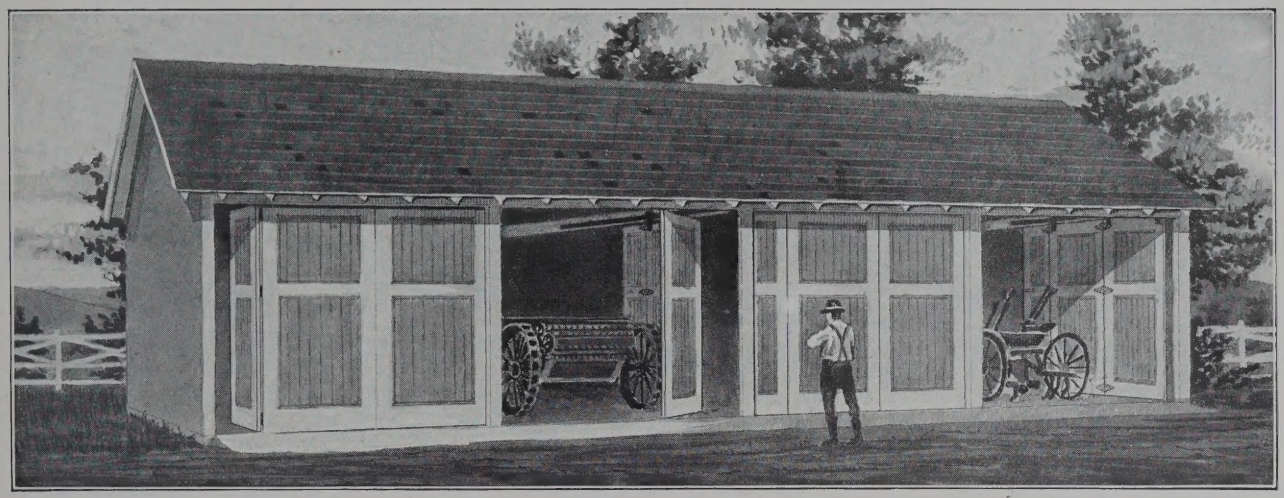
Use Bracing Shown in Cut 1424

If however the distance from side of garage to edge of door opening is anywhere from 32 inches up to 4 feet, place corner braces as shown in Cut No. 1424. The size and length of the brace pieces and their exact location is clearly shown in Cut No. 1424-A.



Cut No. 1424

Length of pieces for this brace and their exact location shown in Cut 1424-A.

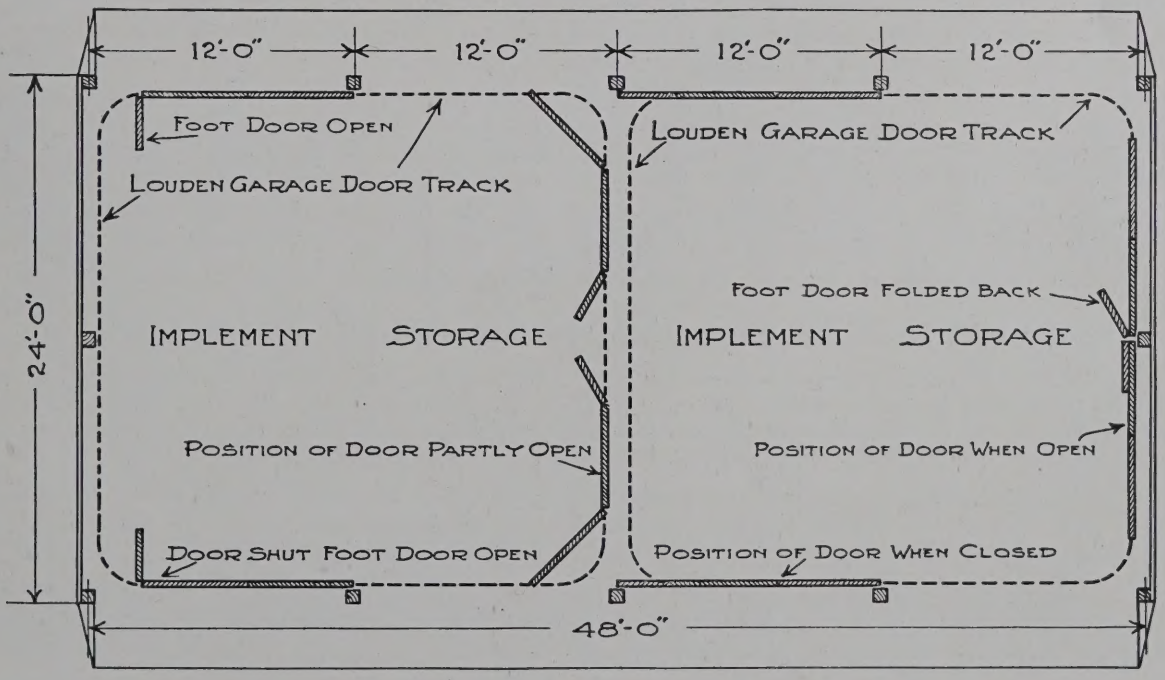


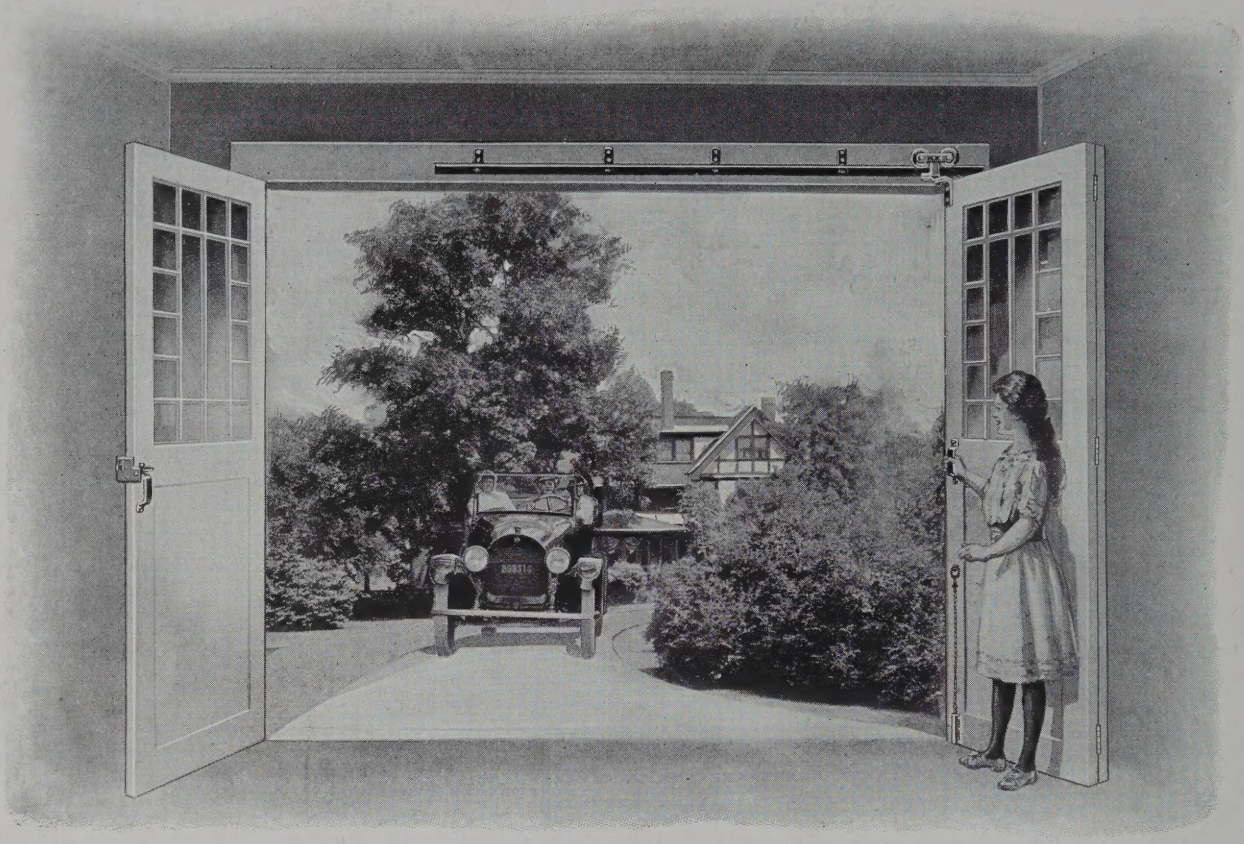
The Handy, Practical Door for Implement Sheds

The Louden Around-The-Corner Door Hanger shown on pages 63 and 64, has proved to be the most practical hanger ever devised for use on implement sheds—where it is desired or found necessary to open the entire side of the building to run in machinery. With the Louden arrangement all the doors can be run inside the building, thus leaving every foot of both sides open at one time.

Cut above shows such a shed and cut below is the floor plan of same. Four main doors take up each entire side of the building. To give an idea of how the doors operate, each is shown in a different position. Reading from the left, the first shows the foot door partially open, which makes it possible to enter the building without shoving entire door back. The second door is shown sliding around the corner, partially opened. The third door is closed, and the fourth door is entirely open, standing against the wall out of the way.

In the past, swinging doors on such sheds have proven unsatisfactory as they invariably swing shut at a time when a binder or some other implement is being pulled in through the door opening. In numerous instances, parts on machines have in this way been broken. The swinging doors for implement sheds must be large. This being the case they usually sag so much that they no longer fit up tight. The Louden Around-The-Corner Hanger completely overcomes these unsatisfactory and objectionable features.





Louden Folding Garage Door Hanger — Fig. 1425

The Louden Folding Door Hanger fixtures allow a pair of hinged doors to slide and fold back to one side when opened. The third or remaining door, being hinged on the opposite side to the jamb, swings open and shut like any ordinary door, permitting a handy foot entrance. Constructed in this manner the doors require very little operating room and may be installed either inside or outside of the garage, as desired.

The Louden Folding Garage Door Hanger fixtures assure weather-tight doors. This popular feature is made possible by the off-set Swivel Hanger which automatically pushes the doors into the opening tightly when shut. (See sectional view on opposite page.) It is a heat saver due to the close flush fit. Because of this additional feature the hanger is used very widely for garage doors built into private residences.

The large roller-bearing track wheels assure smooth and easy operation of the doors. Constant usage cannot make the hanger sag or wobble, and whether open or closed, the folding doors keep perfect alignment.

The swinging foot entrance door can be padlocked, either on the inside or outside of the garage.

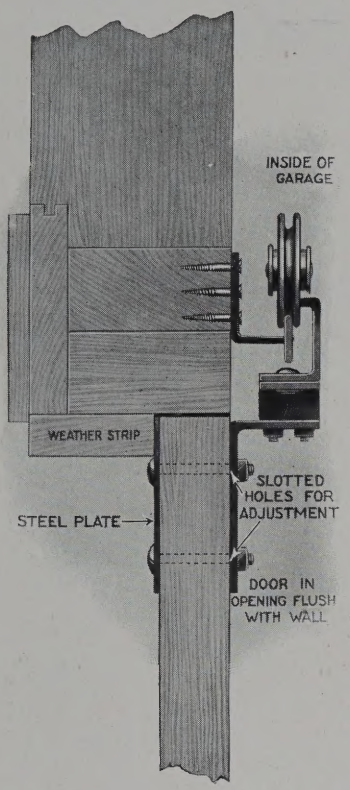
Set Includes Complete Hardware For The Doors

With the Louden Folding Door Hanger set there are no extras to buy. Every single piece of hardware needed for the perfect operation of the doors comes as a part of the regular equipment—even the wood screws that hold the hinges, handles, door pulls, etc. in place. These are included in the set and are packed in separate envelopes marked on the outside indicating just where they are to be used.

But one of the biggest features of the Louden Folding Garage Door Hanger is its easy installation. There is just one piece of straight track to put up—the remaining hardware goes on the doors.

The few simple directions furnished make it possible for anybody—with a screw driver and a hammer—to put up the set in a very short time. The result is a frictionless, sagless, rugged outfit that will give thorough satisfaction in every detail over a long period of years.

And the finish of the hardware adds greatly to the attractive appearance of the doors.



Sectional view showing how the offset Hanger permits door to fit tightly into the opening.

A- The Louden flat track—straight from end to end. Made of high carbon steel 1¼ in. x 3/16 in. with brackets riveted in place.

B- The Louden Hanger with swivel, which allows doors to fold. Hanger is also offset, this permits doors to automatically fit tight into opening flush with wall. Wheels of hanger are roller bearing. They cannot jump the track. Hanger strap has slotted holes for adjustment—bolt heads drawn against steel plate on reverse side of door, gives vise-like grip.

C- 4 x 4 Butts' Hinges (9 in all) with screws complete.

D- Chain Latches—one at top—one at bottom of double folding doors.

E- Latch with special plate for padlock—a distinctive feature. It makes possible absolute sealing of the door.

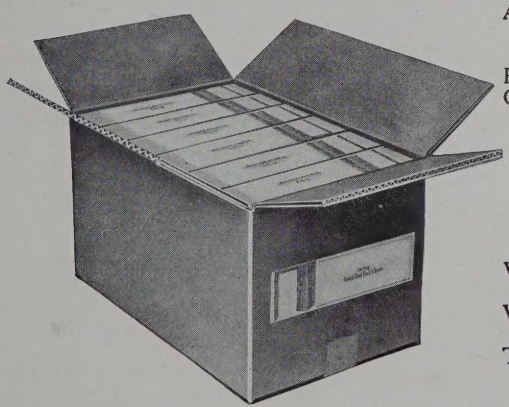
F- Large comfort-grip door pull handle.

Fig. 1425

Specifications for Fig. 1425—Folding Garage Door Set

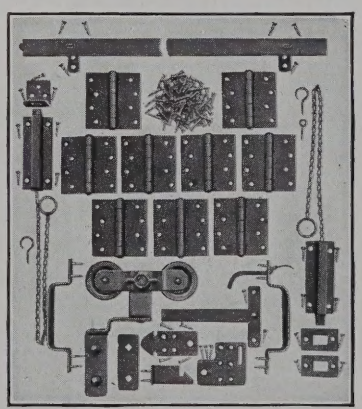
The Louden Folding Garage Door Hanger set is made for both 8-foot and 10-foot door openings.
The 8-foot door requires 6 feet of Louden High Carbon Steel track with brackets attached ready for installing.
The 10-foot door requires 8 feet of Louden High Carbon Steel track with brackets attached ready for installing.
Fittings as follows are included with either of above sets:

1 Louden offset swivel Hanger with adjustable arm and plate to attach to door. Wheels are roller bearing.
2 Chain Latches complete for folding doors made of pressed steel equipped with strong positive springs.
2 Door Pulls or Handles, one with latch and special blind hasp for padlock.
9 Strong 4x4-inch Butts' Hinges.

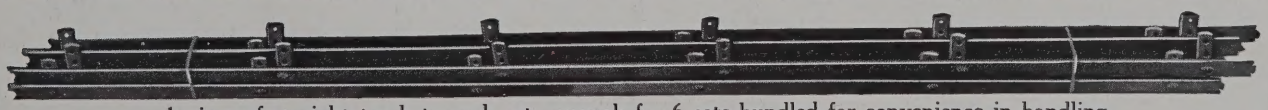


Packed 6 sets in carton for Dealers' convenience.

All necessary screws, bolts, etc., in sealed marked envelopes showing exactly where they are to be used.
Finish: Attractively Black Japanned.
Complete hardware as above, with installation instructions, packed in a neat box. For the convenience of Dealers, 6 boxed sets are packed together and sufficient track for the six sets is bundled separately, making complete sets, easy to handle, no extras required.
Weight—8-foot set complete, including track and fittings, 29 pounds.
Weight—10-foot set complete, including track and fittings, 32¼ pounds.
The three doors used with either set may be of equal or varying widths. Perfect operation assured.
Order by size of the opening desired.



Complete Hardware in Neat Box.



1 piece of straight track to each set—enough for 6 sets bundled for convenience in handling.

Louden Bird-Proof Barn Door Track and Hangers

Fig. 911

Specifications

For all kinds of doors that slide, large or small—wide or narrow.

Track is tubular and trolleys travel inside.

Trolleys cannot get off the track.

Trolleys turn on roller bearings.

Track is made of No. 14 gauge special steel.

Dimensions of track inside, 1⅝ inches wide by 2 1/16 inches deep.

Supporting brackets for track of steel with embossed reinforcements.

Wall brackets of certified malleable iron —strong, tough and durable.

Supporting wall brackets may be placed 36 inches apart, for heavy doors spaced 24 inches apart.

End stops and splices for track packed with trolleys.

Track is furnished in 4-foot, 6-foot and 8-foot lengths.

Weight of track per foot, 1¾ pounds.

Weight of supporting brackets per dozen pair, 9 pounds.

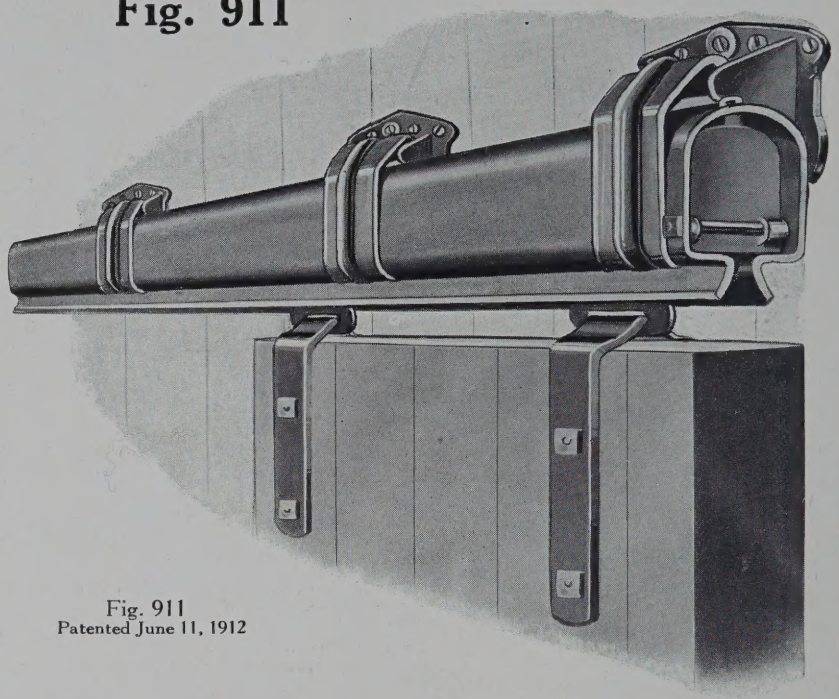
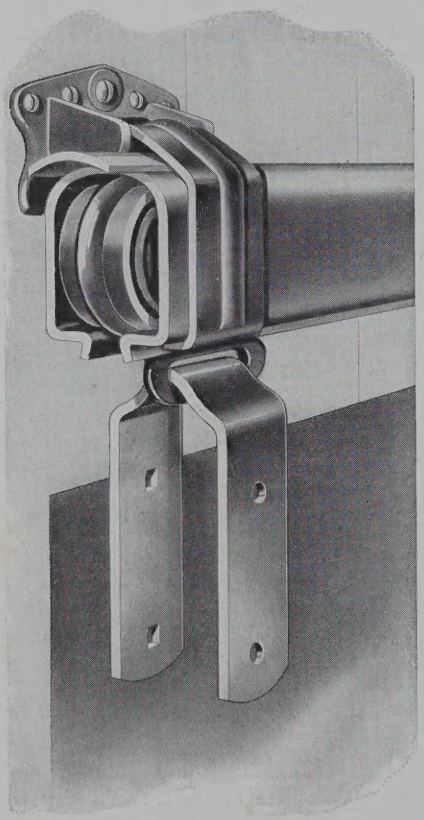


Fig. 911
Patented June 11, 1912



Cut No. 961
Showing End View of Track
With End Stop Removed

Special Features

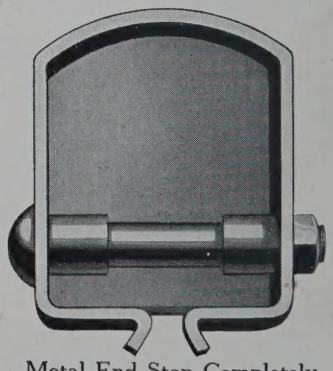
Trolleys Completely Enclosed. The only opening is the narrow slit beneath the track. There is no chance for the trolleys to be clogged or derailed. The track is absolutely proof against nesting birds, trash, rain, snow or sleet.

Flexible at Two Points. The joint in the hanger strap allows the door to swing out away from the building, frequently avoiding breakage by crowding stock. The joint in the track support permits the track itself to swing out from the building, making it possible to easily dislodge trash and dirt which may accumulate behind the track and rot out the siding. This double flexibility allows the door to fit snugly without sticking or binding.

Roller Bearing Tandem Trolleys. The Trolley Wheels revolve on hardened steel roller bearings around a tempered steel shaft. Always roll easily. A light push will open or close the heaviest door.

Trolleys Run on Level Tread. The Bird-Proof Track is square, not oval. The level tread minimizes friction and overcomes the wedging tendency frequently found on oval tracks which support heavy doors.

Simple and Strong in Construction. The form of the Bird-Proof Track, and the special grade of steel used in its manufacture, combine to give it wonderful strength and rigidity. It is further strengthened by the curved lips on the under side of the track. Will not sag under the weight of heavy doors.



Metal End Stop Completely
Closes Track

Louden Bird-Proof Track and Hangers — Continued

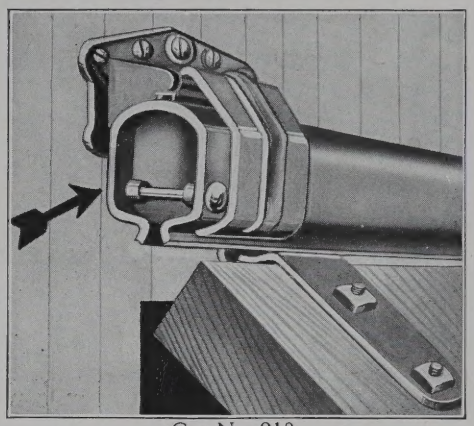
We believe this to be the neatest, strongest, easiest operated, and most serviceable barn door hanger on the market. It has been in use on thousands of barns and we have heard nothing but good words spoken of it. It will give you perfect service.

The Track

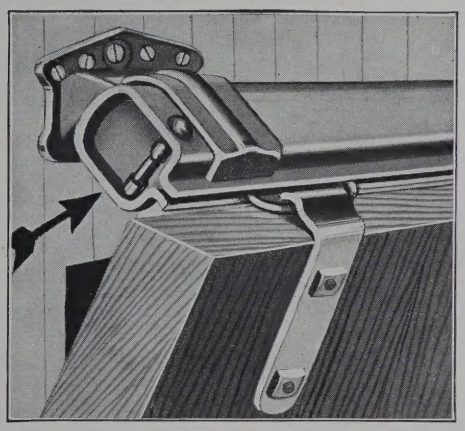
The track for the Bird-Proof Hanger is made from a solid sheet of steel pressed into shape. The ends are closed by special end stops, bolted in. The track is completely enclosed, with the exception of the narrow hanger slit at the bottom.

The lips of the track on each side of the slit are curved down and out. This feature gives strength and stiffness to the track and insures an even surface on which the wheels run.

The track is made in standard sections, 4, 6, and 8 feet long. When two or more sections are used, the ends are held together by a steel splice. The splice is put on without rivets or bolts and holds the sections firmly so they can never spread apart. *No other track on the market has this feature.*



Cut No. 918



Cut No. 683

Support of the Track

The track is supported by heavy steel brackets bent to fit snugly around the track and close up to the lips on the under side. A heavy corrugated rib in the center reinforces them strongly — they will never spread and the track cannot sag under the weight of the heaviest doors. The brackets are hung to heavy, malleable iron wall fixtures which are lag screwed and nailed to the wall. The connection between the brackets and wall fixtures is flexible and allows the track to swing freely out sidewise—one of two points of flexibility in this hanger.

Cut No. 961 shows how closely the brackets fit around the track, how the trolley wheel fits into the groove of the track and how the lips of this groove curve out.

Flexibility of Track

Cut No. 918 shows the track hanging in normal position, but with the door swung partly out. This is the flexibility that saves many a break from crowding stock and the free swing prevents the door from sticking and binding in sliding past a warped or uneven wall.

The arrow points to the narrow space between the track and the barn siding which sometimes fills with trash and dirt. With an enclosed track nailed or fastened solid to the wall the dirt cannot readily be cleaned out, and when wet it rusts the track and rots the barn siding. The Louden Flexible Bird-Proof Hanger is the only one that perfectly overcomes this serious fault.

By simply pressing outward on the door from the inside, the track may be swung out, as shown in Cut No. 683, to allow the trash and chaff to drop out.

The Splice for Louden Bird-Proof Track

In Fig. 895 is shown the splice clamp for holding the ends of the track together. No. 1 shows the splice clamp standing on edge on top of the track and ready to be placed in position.

No. 2 shows the splice in position and the steel bracket pushed partly over it. It will be noted that in No. 1 and No. 2 the mal-

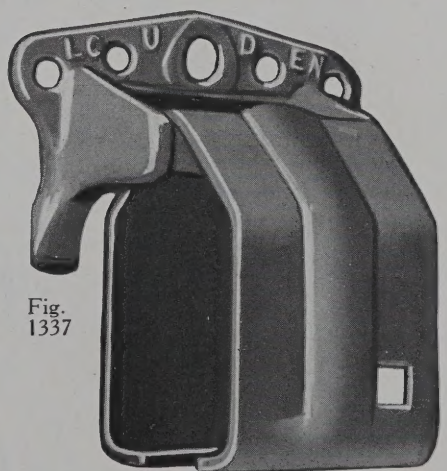


Fig. 1337

Track Bracket and Supporting Bracket for Bird-Proof Track.

Bird-Proof Barn Door Track and Hangers — Continued

leable bracket which attaches to the barn wall is turned away from the wall. In this position the bracket will easily slip over the splice.

In No. 3 the bracket is slipped entirely over the splice and is turned the other way and fastened to the wall. In this position the bracket binds down on the splice, holding it just as firm and solid as though it were riveted or bolted in place. This is a valuable and important feature, as the splice absolutely prevents the ends of the track from separating and making a rough place in the track, or possibly allowing the trolley to drop out. The Louden Bird-Proof Track is the only tubular track having this valuable feature.

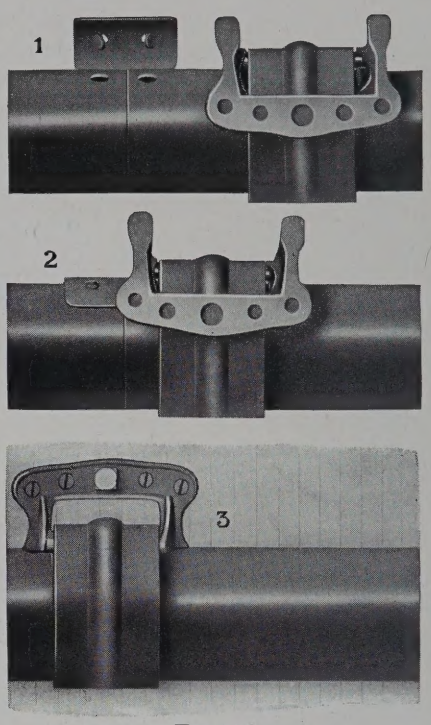


Fig. 895

Galvanizing

At a small additional cost the Bird-Proof Hanger may be furnished galvanized if desired. We have our own galvanizing plant. By this process steel or iron is thoroughly covered with a heavy galvanized coating which protects the metal from rust and corrosion and gives it greater wearing qualities—longer years of service.

The Trolleys

The Louden Bird-Proof Hanger has a set of two tandem trolleys. Each trolley has two solid iron wheels, fitted with steel roller bearings and revolving on a steel shaft. These wheels are carried in a heavy double truck frame of steel with a corrugated rib to strengthen it. The wheel shafts are riveted firmly into this frame at each end, and can never work loose or get out of order. Our patent revolving washer protects the bearings from wear, reduces friction and adds years of life to the service of the hanger.

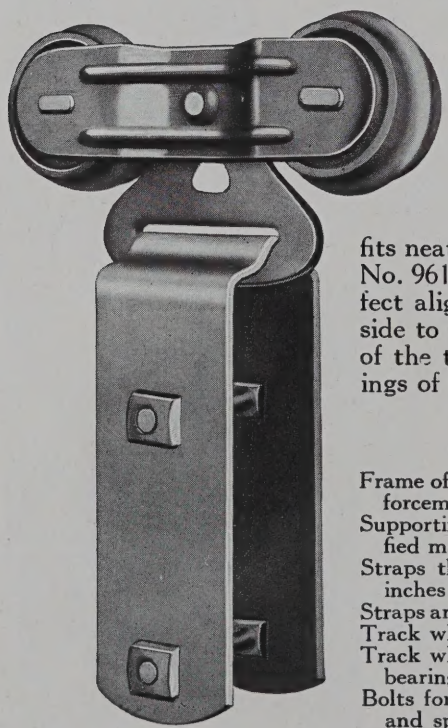


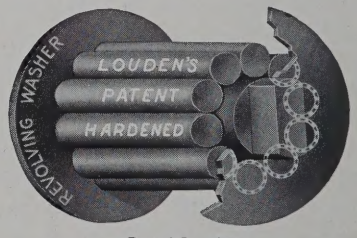
Fig. 902
Roller-Bearing Tandem Trolley.

The supporting parts are of heavy malleable iron, riveted to the truck frame midway between the two wheels. This malleable support comes down just below the lips of the track and carries a broad steel strap which attaches to the door. This is the second point of flexibility in the Louden Bird-Proof Hanger, and allows the door to swing freely sidewise. (See Fig. 902.)

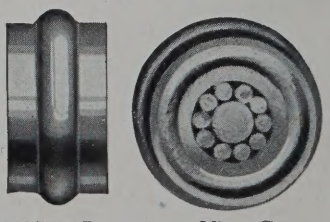
View B is an end or edgewise view of one wheel, showing the rib or bulge in the center of its face. This rib fits neatly into the slot in the track (See Cut No. 961) and keeps the wheels always in perfect alignment; they can never wabble from side to side and bind or rub against the side of the track. View C shows the roller bearings of the wheels.

Specifications

Frame of trolley of pressed steel with embossed reinforcements.
Supporting loop for strap that carries door of certified malleable iron.
Straps that carry door of No. 12 gauge steel, 1¾ inches wide.
Straps are furnished regular for doors 1¾ inches thick.
Track wheels are of special quality gray iron.
Track wheels are 2 inches in diameter and are roller bearing. (See Cut 19B and C.)
Bolts for attaching hangers to doors, also end stops and splices for track are packed with each set of trolleys.
Each set of hangers packed in neat paper box.
Weight per dozen sets, 76 pounds.



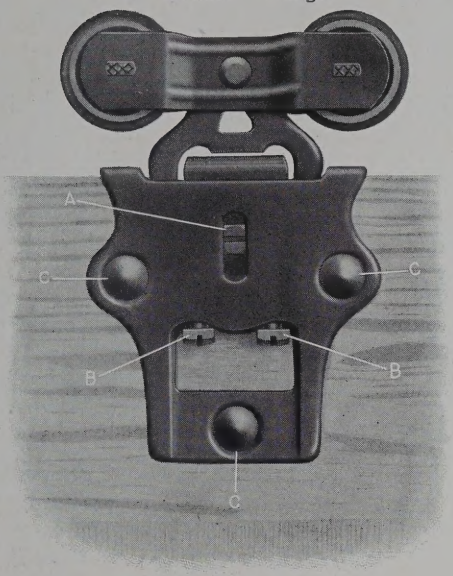
Cut No. 19
Detail of Roller Bearings on which the wheels of Louden Bird-Proof Hangers turn.

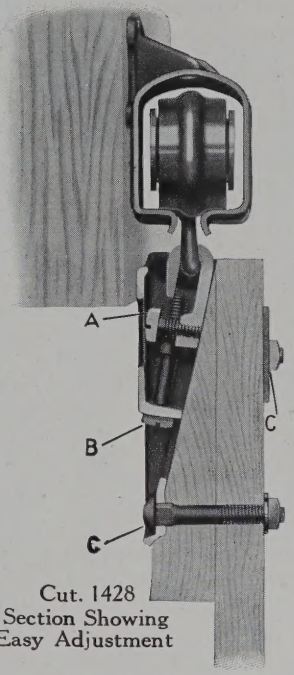


View B View C

Adjustable Hangers for Louden Bird-Proof Track

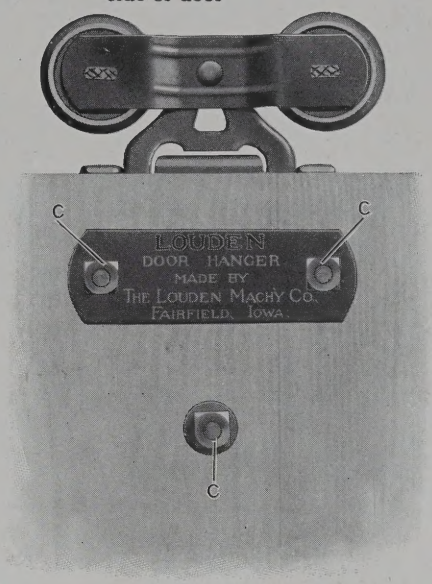
Fig. 1427 Inside view showing adjustments of Louden Hanger





Cut. 1428
Section Showing
Easy Adjustment

Cut 1429 As the Hanger appears from outside of door



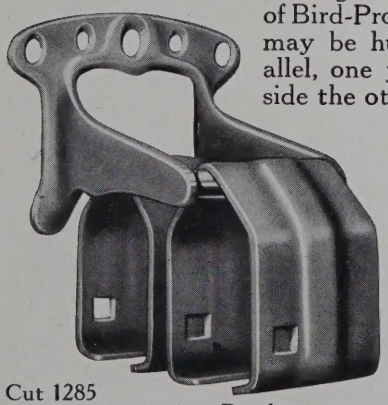
Specifications

Hangers are adjusted from inside of building out of weather.
Hangers adjustable in and out or up and down 5/8 inches.
Trolley Frame, pressed steel with embossed reinforcements.
Casting that attaches to door made of certified malleable iron.
Bolts regularly furnished for doors up to 2 inches in thickness.
Doors as thick as 3 inches may be used but longer bolts will be required in such cases.
Track wheels are of special quality gray iron.
Track wheels are 2 inches in diameter and are roller bearing (see cut No. 19-B and C opposite page).
Bolts for attaching to door, also end stops and splices for track are packed with each set of hangers.
Complete set packed in neat paper box—Weight 6½ pounds.
Crated, 6 sets in wooden container, weight 43 pounds.

Door may be adjusted in or out by tightening or loosening bolt A and adjusted up or down by tightening or loosening bolts B. See page 76 for full details of adjustment.

Double Bracket for Bird-Proof Track — Fig. 1204

It is often necessary to hang two doors in such a way that one can slide past the other. For such an arrangement we furnish a double track support from which two regular sections of Bird-Proof Track may be hung parallel, one just outside the other.



Cut 1285
Double Supporting Bracket

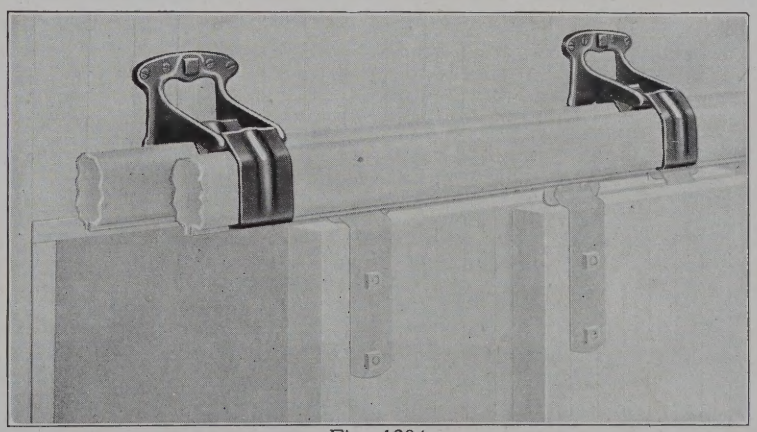


Fig. 1204

This equipment is the same in every detail as the regular Bird-Proof, except that the supporting bracket is longer, and has supports for two track brackets instead of one. The doors hang true and fit snugly. There is no waste space between and they operate smoothly and easily.

Louden "Raintite" Barn Door Track

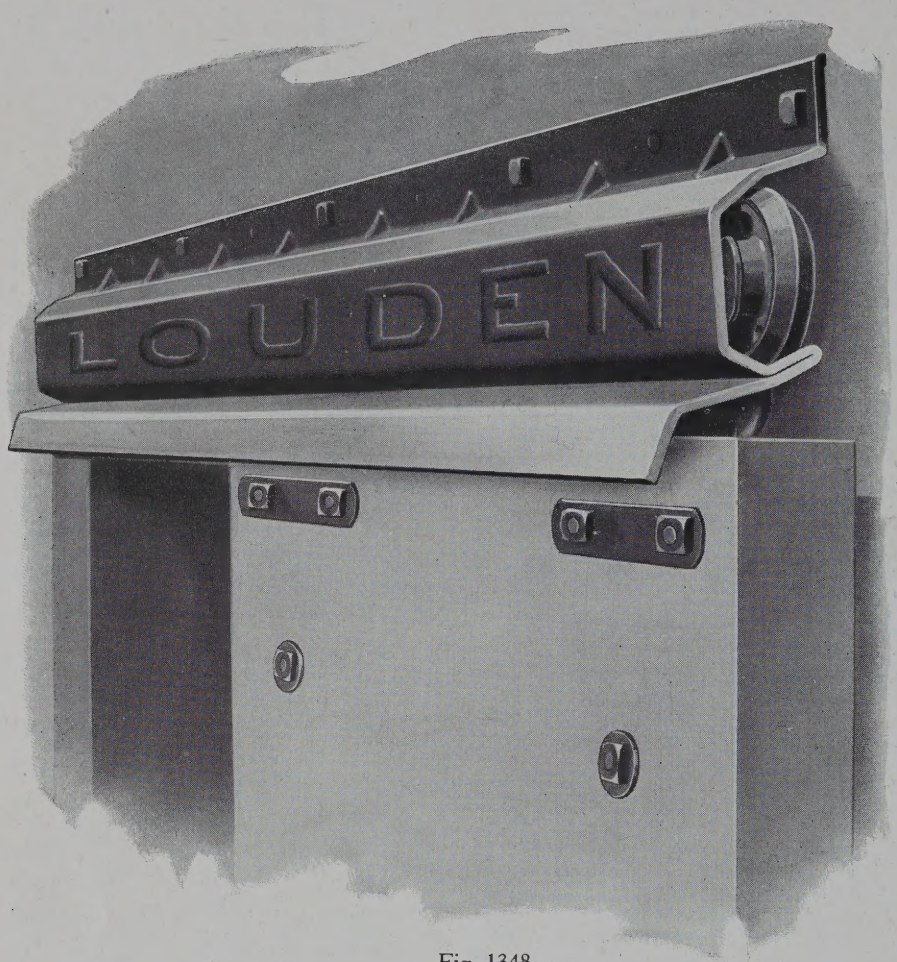
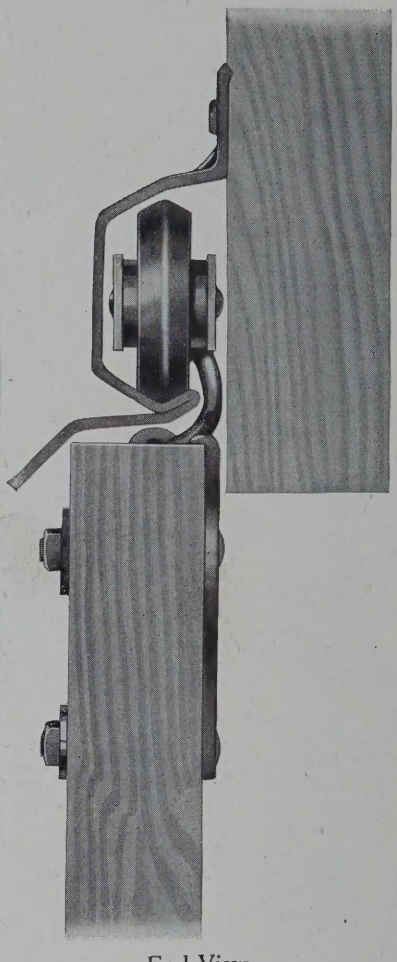


Fig. 1348



End View

Specifications

For all kinds of doors, large and small.
Trolleys travel inside, cannot get off track.
Track made of No. 14 gauge special steel.
Dimensions of track inside, 1⅞ inches wide, 3 inches deep.
Track fastened to building by lag screws spaced 12 inches apart, supported between lag screws by nails.
Lag screws of proper length for customer's requirements may be purchased from any Hardware Dealer.
End stop and splices packed with trolleys.
Track made out of one piece of steel.
Lower edge of cover extends out over and down beyond upper edge of door, making it absolutely weather tight.
The downward bend in the water shed projection gives great strength to the track.
Track furnished in 4-foot, 6-foot and 8-foot lengths.
Weight of track per foot, 2½ pounds.

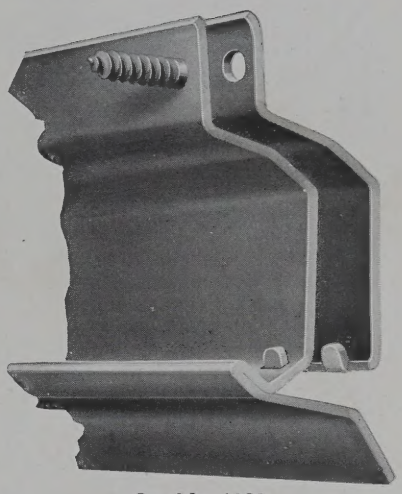
The Louden "Raintite" Barn Door Track is all that the name implies. It is a one-piece track which completely houses in the trolleys and covers over the top of the door, making the entire outfit both storm and weather proof.

Users are enthusiastic about the track because it is built to last; because doors hung on it operate so easily and smoothly, and because it is so thoroughly weather-proof in its design and shape. In the construction of this track not a single rivet or weld is used—it is formed out of one continuous piece of heavy steel plate 14 gauge in thickness which naturally gives it great strength and durability. The tread of the trolley wheels is accurately machined to exactly fit the shape of the tread in the track and each wheel turns on roller bearings which makes it easy to open and close the doors. The "Raintite" track completely houses in the trolleys and has a water shed projection that extends out over the entire top of the door —that keeps the rain out—and the downward bend of this projection toward the outer edge of the water shed reinforces, adds to the stiffness and hence increases the already great strength of the track.

"Raintite" Track Is Easy To Put Up

Builders like the "Raintite" because they know it always gives such thorough satisfaction to the user, and, in addition, because it is so easy and simple to put up. There are no parts to assemble on the job—in fact, there is nothing to do but place it above the door opening and fasten it in place by driving a nail in every other hole, inserting lag screws in the holes that are left—it's so simple that anyone can do the work in a few minutes' time.

Embossed reinforcements every 6 inches apart make an exceptionally strong and durable construction. At the extreme upper edge the track is crimped sharply towards the building. When the track is fastened in place to the barn this upper edge presses into the siding, making it impossible for water or moisture to get behind the track.

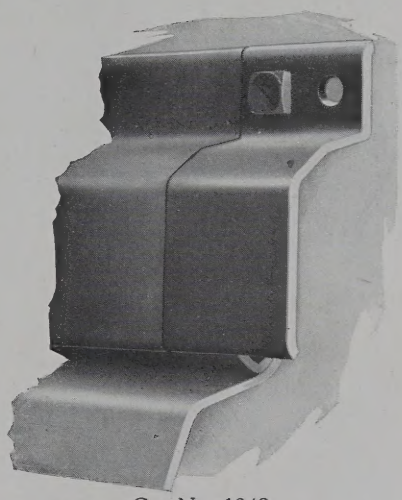


Cut No. 1350

Splicing the Track

Cuts 1349 and 1350 show how two pieces of track are joined together, Cut 1349 being an outside view and Cut 1350 a view looking at the inside. Small holes are punched in the ends of each piece of track —the joint plate has two upturned teeth on its bottom edge—each tooth hooks into the hole of each adjoining piece of track when the two tracks are abutted up together. Lag screws through the upper flange of the joint plate, extending through corresponding holes in the end of each track, firmly lock the joint and hold it secure to the side of the building, making a connection that will never come apart or get loose. Looking at the inside of the track, Cut 1350 shows the lower edge of connecting plate hooked into the end of one piece of track and the lag screw through the plate and track above, also the open hole above and tooth below which engages the abutting piece of track.

These same holes in the ends of the track are used to fasten on the malleable end stops. As shown in Cut 1351, the stop has a tooth that fits into the small lower hole and a lag screw through the upper portion of the stop casting and track locks the end piece in place and makes the end fastening for the track to the building.



Cut No. 1349

One Solid Piece of Track

When on the building there is not a single opening in the entire track except the oil holes which are placed in each end stop for oiling the enclosed trolleys.

When you realize how simple it is to splice the "Raintite" track—how strong the splice really is, how easy it is to put on the end stops and how substantially they are held in place—how strongly the track is constructed and out of what heavy durable material it is made—how easily the doors glide along in opening and closing them and how perfectly the track aligns up—you will be convinced it is the one practical track for your use

For Any Door That Slides

"Raintite" Barn Door Track will be found to be the most satisfactory for any sliding door, whether it be on a barn, implement shed, storehouse or any other building. Also adaptable for gable end hay doors, and in fact any place outside where the track must be kept free from birds, weather and trash, it will be found that this type of track will serve the purpose to the very best advantage.

Thousands of doors, in cold and warm climates, in wet and dry countries, are sliding easily on "Raintite" Track.

Cut No. 1351

Adjustable Hanger for Louden "Raintite" Track

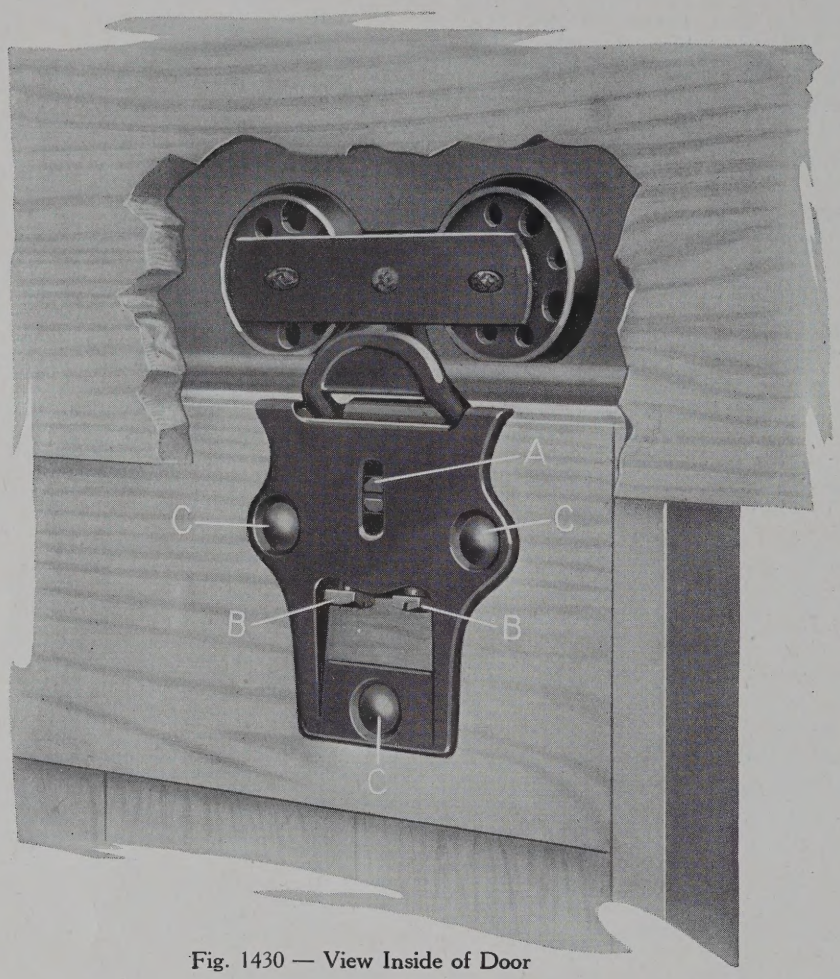
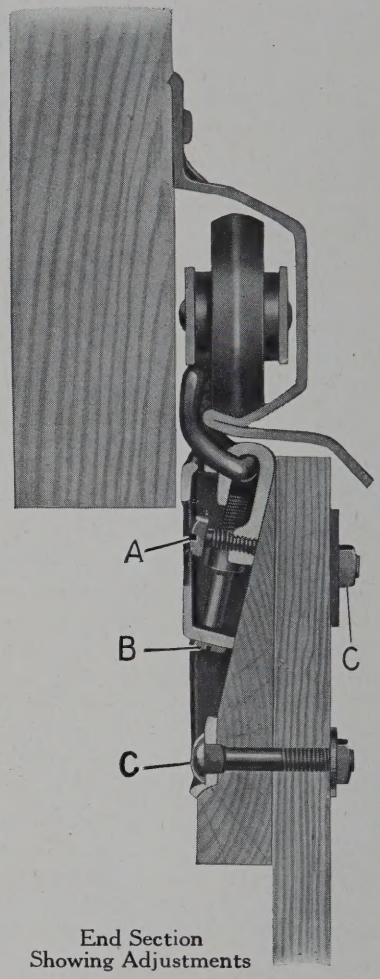


Fig. 1430 — View Inside of Door



End Section
Showing Adjustments

Specifications

Hangers are adjusted from inside of building—adjustable parts are protected from outside weather conditions.
Hangers may be adjusted in and out or up and down as much as $\frac{5}{8}$ inches all without taking door off track.
Frame or saddle for trolley wheels are made out of steel.
Trolleys $2\frac{3}{4}$ inches in diameter made out of special quality gray iron. These large trolleys make easy running doors.
Hanger frame that attaches to door made out of certified malleable iron. The highest quality Malleable Iron made.
Tread of trolleys accurately machined to fit groove of track so as to insure perfectly smooth and easy operation of door.
Distance on center of front and rear trolley wheels 4 inches.
Trolley Wheels are roller bearing and revolve around stationary axle equipped with revolving washer.
Bolts furnished for attaching hangers are $\frac{5}{16}$ inches in diameter and are for doors up to 2 inches in thickness.
Doors of any thickness may be used but bolts of right length will be required. These can be procured from local sources.
Bolts for attaching to door, together with end stops and splices complete for track are furnished as a part of each complete set of hangers.
Complete set packed in neat cardboard box—weight, $8\frac{1}{2}$ pounds; crated, 6 sets in substantial wooden container, weight, 57 pounds.

A Sliding Door that drags or rubs in opening and closing is a constant source of inconvenience and annoyance. Doors that work smoothly and easily when first put up will sometimes give trouble of this kind later on because of frost-swollen ground heaving up the floor; because of the building wall warping or bulging. The Louden Adjustable Door Hanger, Fig. 1430 is built to overcome just such conditions—to insure perfect operation of door at all times—to keep it tight over opening yet free from rubbing or dragging.

The Louden Adjustable Door Hanger is fastened to the back or inside of the door instead of the outside; thus, doors of any thickness may be hung from it by using bolts of the right length. And the finished door gives an extremely neat exterior appearance.

But the biggest feature in the Louden Hanger is the fact that the door can be adjusted both *in* or *out*

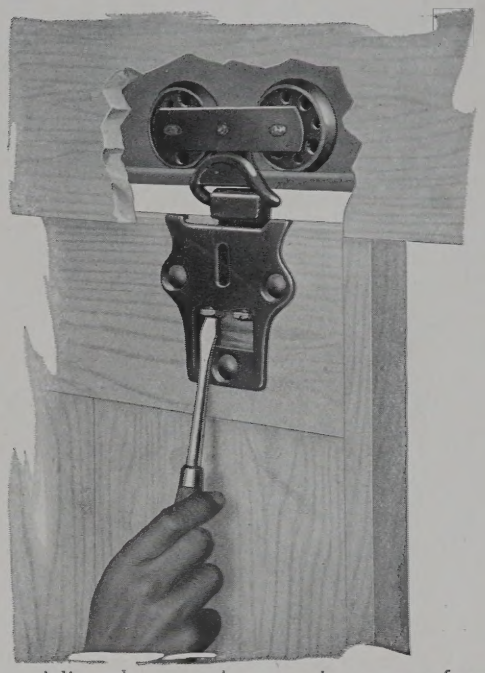
Adjustable Hanger for Louden "Raintite" Track — Continued

and *up* or *down* from the *inside* of the building and without having to run the door off the track to do so. All adjusting parts are inside, protected from the weather—an assurance against rusting or sticking such as might occur were they placed on the outside of the door instead. And further, the needed adjustment can be made at an odd time when the weather is bad and outside work impossible. These features, together with the simplicity of the Louden Hanger, make it possible for one man to adjust any door—large or small—in a very few moments—the only tool needed being a screw driver.

Never before was there such a simple yet such an effective adjustment built into a Door Hanger. If it is necessary to raise the door a little—turn bolts B to the right—if the door needs to be lowered turn the same bolts to the left instead. To adjust the door against the wall turn bolt A to left—to adjust away from wall turn the same bolt to the right. Each adjustment is independent of the other.

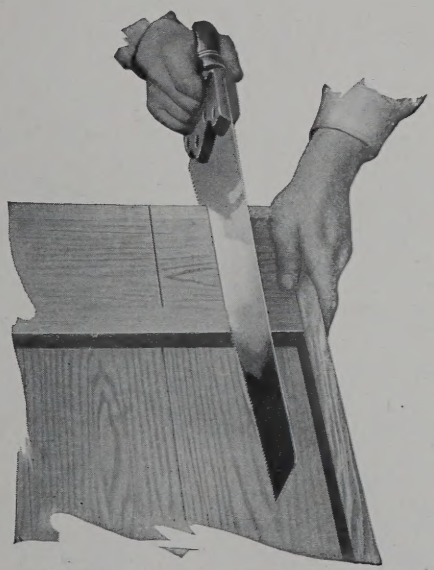
Another outstanding feature of design is that the hanger permits the top of the door to fit up snugly under the track—absolutely weather tight.

The Adjustable Door Hanger is quality built. Hanger frame is made of certified malleable iron—the highest quality of malleable that can be produced—and the saddle is built of steel. Trolleys are made of the highest quality gray iron and revolve on steel bearings. These trolley wheels are large, 2¾ inches in diameter—and the face of each is accurately machined to fit the groove of the track. These important wheel features largely account for the very easy operation of doors of any weight when hung on Louden Track and Hangers. The perfect satisfaction the Louden Hanger is giving is attested by its thousands of users.



Adjusted up or down or in or out from inside of building—the only tool needed is a screw driver. View shows door adjusted down.

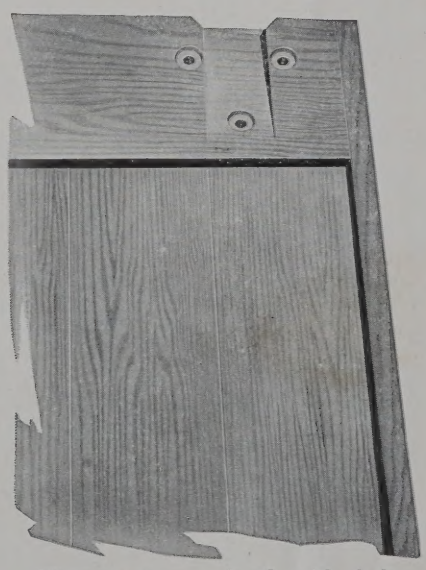
Louden Adjustable Hanger Easy To Put On Door



Showing how simple it is to make the plain notch on the inside of the door for the Adjustable Hanger—the Louden requires no irregular mortises that need special tools.

Most Adjustable Hangers require an irregular shaped mortise, very difficult to make with ordinary carpenter tools. Therefore in designing the Louden Adjustable Hanger, the ease with which it could be put on the door was just as important a consideration as was the operation of the hanger itself. As a result, the one extremely simple mortise needed for the Louden Adjustable Hanger can be quickly and easily made by anyone with a saw and chisel, because it is nothing but a plain notch.

The simplicity and ease with which this Louden Adjustable door hanger can be installed is best told by the illustrations on this page. Perfect operation, effective adjustment, long life and ease of erection make it the most popular adjustable hanger ever placed on the market.



The notch completed with holes ready for the hanger. The few simple directions that go with each set makes the job even easier than it looks and the doors work perfectly for years to come.

Non-Adjustable Hanger for "Raintite" Track

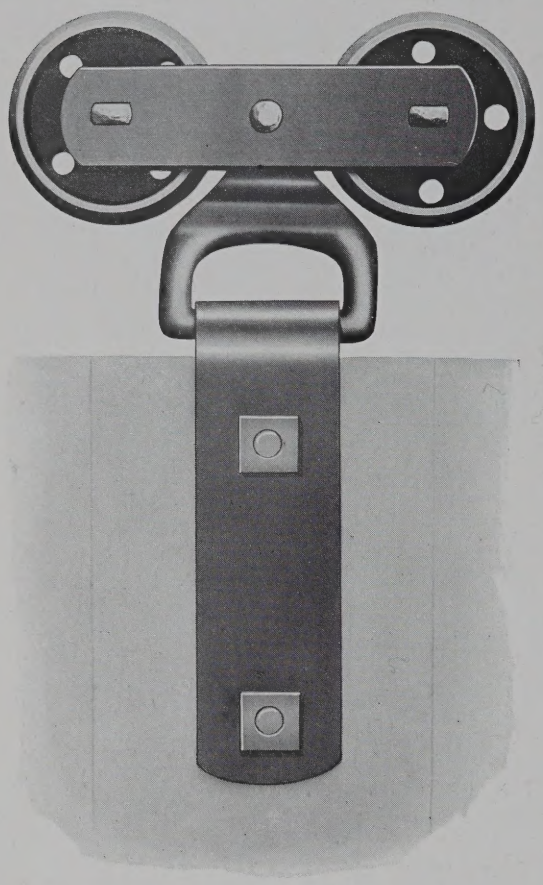


Fig. 1367 Non-Adjustable Raintite.

Specifications

Frame or Saddle for Trolley wheels made throughout of steel.
Trolley wheels made of special quality gray iron and are 2¾ inches in diameter. These large trolley wheels make easy running doors.
Hanger frame that attaches to door made out of steel and the casting that connects it with the trolley frame is certified malleable iron—the highest quality of malleable made.
Tread of each trolley wheel is accurately machined to fit groove of track so as to insure perfectly smooth and easy operation of the doors.
Trolley wheels run on steel roller bearings and revolve around stationary axle equipped with a revolving washer.
Distance on center of front and rear trolley wheels 4 inches.
Bolts furnished for attaching hangers are $\frac{5}{16}$ inches in diameter and are for doors up to 2 inches in thickness.
Hanger is designed for doors up to 2 inches in thickness.
Bolts for attaching hanger to door, together with end track stops and track splices are packed with each set of hangers.
Complete set in neat card board box—weight, 7 pounds 4 ounces; crated 6 sets in strong wooden container, weight, 49½ pounds.

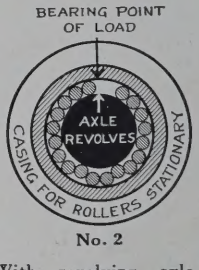
Fig. 1367 is the Plain or Non-Adjustable Hanger for Louden Raintite Track. It has no adjustment but in every other detail of construction the hanger is identical with the Adjustable Raintite Hanger shown on previous pages. Thus the Fig. 1367 hanger has the same large roller bearing trolleys, the tread of each being accurately machined to exactly fit the groove of the track — Louden features that provide for absolutely smooth, easy, steady movement. It has the steel trolley frame and the certified malleable iron link that connects this frame with the portion that attaches to the door—all important factors in the long life and durability of the hanger. And because it is not adjustable, it is correspondingly lower in cost.

The Hanger Strap is U-shaped, and is held firmly in place on the door by two $\frac{5}{16}$-inch carriage bolts. It is easily put on by boring only two bolt holes on the door.

Just A Touch Moves Any Louden Door Hanger

The trolleys in all Louden Door Hangers are equipped with roller bearings. The axle around which the trolley turns is solidly fastened to the frame of the hanger and therefore always remains stationary. With such a construction the weight of the door is on the *under* side of the axle and on the bearings that *lay closely* together at this point. Hence as the trolley turns, the roller bearings revolve orderly around the surface of the axle, always traveling in the same uniform manner, never riding or crowding each other in the least. This is a prominent feature of Louden design and construction that makes the trolleys turn so smoothly and the door operate so easily. It is illustrated in drawing No. 1.

With stationary axle the weight of the door rests on roller bearings close together — the Louden construction.



With revolving axle the weight of the door rests on space between bearings — causing bearings to ride each other.

Now compare this Louden feature with the ordinary roller bearing trolley construction used wherein the axle revolves. With such the weight of the door rests on the top of the axle—not on full bearings laying closely together but instead on the *looseness* taken up between all bearings such as always occurs at that point. The downward pressure of the load spreads the bearings as far apart as they will stand, and in so doing causes them to crowd and ride each other all around the race with a tendency to bind—all of which hinders their smooth operation. This construction is shown in drawing No. 2. Ease of operation should be one of the big features in any door hanger. The mere fact that a hanger is roller bearing does not always insure such—the stationary axle is equally important. Every Louden Door Hanger Trolley has both the stationary axle and roller bearings—that's why they glide along so easily with the lightest touch.

Louden Sliding Gable Door Fixtures

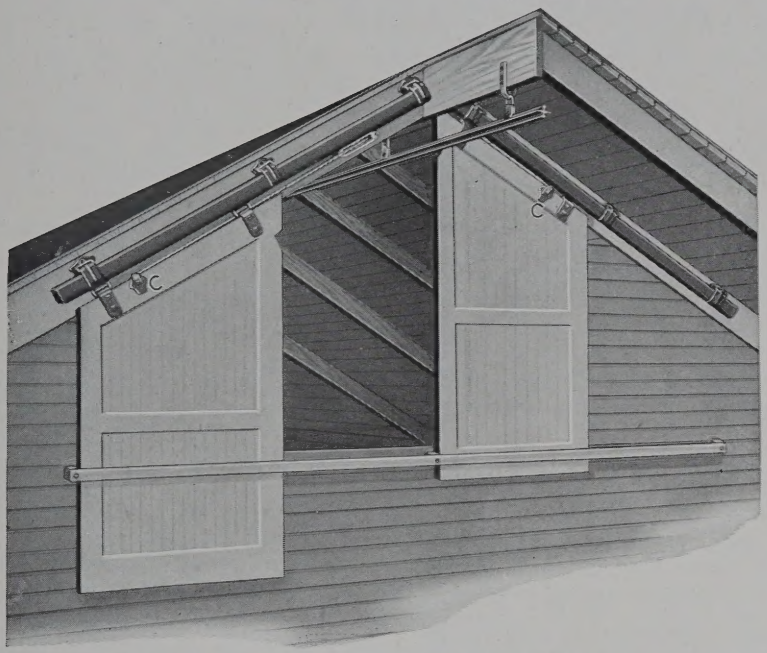


Fig. 1435 Fixtures for double sliding hay doors.

Specifications

Fixtures are regularly furnished for openings both 8 feet and 10 feet wide.

Fixtures to fit additional widths will be furnished on special order.

For 8-foot Opening

2 pieces of Bird-Proof Track, 8 feet long (shown on page 70); 2 sets of Non-Adjustable Bird-Proof Hangers; 8 certified malleable iron Bird-Proof Brackets; 8 steel Bird-Proof Brackets; 2 certified malleable iron clamps with bolts for attaching cable to doors; 2 mortise pulleys; 2 side pulleys; 2 pieces of 3/16-inch cable, 16 feet long.

For 10-foot Opening

2 pieces of Bird-Proof Track, 10 feet long (shown on page 70); 2 sets of Non-Adjustable Bird-Proof Hangers; 8 certified malleable iron Bird-Proof Brackets; 8 steel Bird-Proof Brackets; 2 certified malleable iron clamps with bolts for attaching cable to doors; 2 mortise pulleys; 2 side pulleys; 2 pieces of 3/16-inch cable, 18 feet long.

Fixtures complete are crated in wooden box and track is securely bundled.

In ordering be sure to specify width of opening to be fitted.

The cuts illustrate the Louden Double Sliding Door Outfit for Gable End Hay Doors. With this arrangement even the heaviest doors can be operated by one person, at any time easily and quickly. In addition one door or both doors may be opened or closed as little or as much as desired. They can be made to fit up around the hay carrier track more tightly than can the hinged type of door. In every way the Louden Outfit makes an ideal installation for handling these big, heavy, cumbersome doors that are located high up and hard to get to. Such equipment is a great convenience and saves much time and hard work.

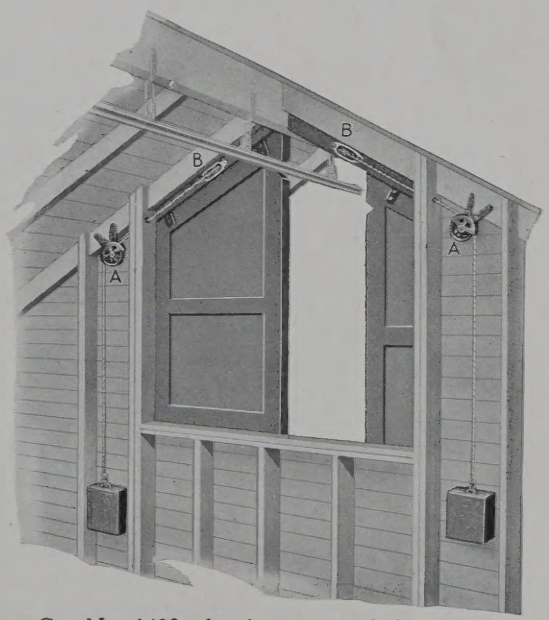
The track extends along parallel with the roof and the hangers are fastened in the same way as on any ordinary sliding door. Each door is opened and closed by means of a counter-balanced weight suspended from a steel cable on the inside of the building. (See Cut No. 1432.) This cable runs up through the Side Bracket Pulley A, thence through the Mortise Pulley B and attaches to the outside of the door by means of the Cable Connection C (Fig. 1435).

For counter-balance weights we recommend the use of concrete. Thus, the weights can be made right on the job and of the correct size and shape to fit requirements. Concrete weighs around 135 pounds per cubic foot. Hence, where the weights slide up and down between two 2″x6″ studs, the concrete block should be around 5 inches thick, 8 inches wide and high enough to give the needed weight for the doors to be operated.

A 2″x4″ makes a very good guide across the bottom of the doors to keep them from swinging out.

The Louden Raintite Track and Adjustable Hangers may be substituted for the Bird-Proof Track and Non-Adjustable Hangers but unless otherwise specified the Bird-Proof Outfit as shown above will be furnished.

The Outfit complete consists of sufficient Track, Hangers, Pulleys, Cable and Cable Connections for the width desired. *Be sure to state width of opening in ordering.*



Cut No. 1432, showing counter-balance weights on inside of barn together with cable and pulleys for opening and closing the doors. Weights slide up and down between end studding.

Louden Double-Strap Covered Jointed Barn Door Hanger

Specifications

Frame of trolley of certified malleable iron.
There are two trolleys with each set of hangers.
Track wheels are of special quality gray iron.
Track wheels 3 inches in diameter and roller bearing. (See Cut 19 page 72.)
Track wheels protected from weather and trash by a malleable iron hood.
Projections on hood automatically clean track of any obstruction.
Straps which attach to the doors are of No. 12 gauge steel, 1⅜ inches wide.
Bolts for attaching to doors packed with each set of hangers.
Each set of hangers packed in neat paper box.
Weight, per dozen sets, 82 pounds.

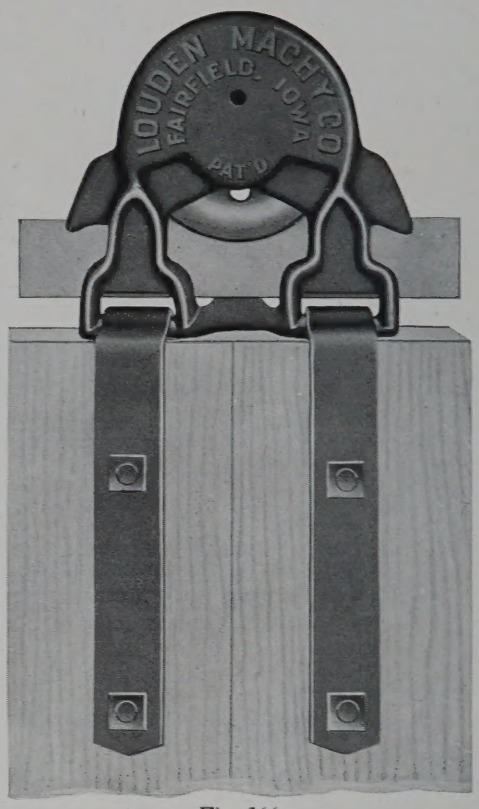


Fig. 566

The Louden Double Strap Hanger is giving complete satisfaction on thousands of buildings—barns, sheds, garages—wherever sliding doors are used. Many of those installed as long as 20 years ago are still doing their work perfectly. Regardless of the newer types of enclosed tracks that have been placed on the market during the last few years, the Louden Double Strap Outfit continues to be one of our big sellers—an evidence of its popularity. While it is somewhat cheaper in price, it has in addition many good, strong, practical features that the ordinary track and hanger of this type does not have. These outstanding features are readily recognized by the discriminating customer who is making a choice and the result is a constantly increasing demand for the Louden Double Strap.

A Flexible Hanger

The Double Strap Hanger like all others of Louden manufacture, is flexible. This feature allows the door to swing freely away from the building. Stock running against, crowding or butting the door from the inside cannot throw it off the track or break anything—under such circumstances the flexibility in the hanger permits door to swing out as is clearly shown in Cut 483, which also illustrates method of attaching the track to the barn siding. However if desired nails may be used instead of screws.

Cut No. 483

Easy Running Trolley

The trolleys in the Louden Double Strap Hangers turn around tempered steel roller bearings—always glide along smoothly and easily. Each trolley wheel is protected by a malleable iron hood. This keeps rain, snow, dust and dirt out of the working parts—a further assurance of constant easy operation.

Projections on each side of the trolley straddle the track and automatically clean trash, birds' nests or other obstructions off as the door is being operated. This entirely eliminates much of the trouble so common with the ordinary track and hanger of this type.

The Louden Double Strap Hanger is provided with keeper lugs which prevent trolley from getting off the track.

Strong and Durable

The two straps with four bolts make the Double Strap Hanger much stronger and more durable than similar hangers having but a single strap and two bolts. The wide frame with the double strap feature also serves to hold the hanger rigid lengthwise of the track and completely does away with the end play found in hangers with a single bearing directly under the center of the wheel.

The Louden Double Strap Hanger is well designed, easy running, long lived, extremely serviceable and easy to put up. We especially recommend it for medium sized doors.

Track for Double-Strap Hanger

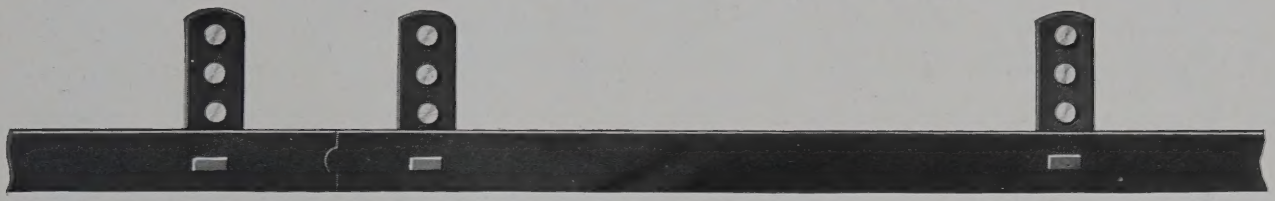


Fig. 487

Specifications

Track is of high carbon steel $\frac{3}{16}$x1$\frac{1}{4}$ inches.
Supporting wall brackets of steel.
Wall brackets are riveted solid to the track.
Track is furnished in 4, 6 and 8-foot lengths.
Weight of track, per foot, 1 pound (including supporting brackets).

Fig. 487 is the track used for the Louden Double Strap Hanger, shown on opposite page. It is made of the best high carbon steel, $\frac{3}{16}$x1$\frac{1}{4}$ inches, and will stand twice the strain ordinarily required.

The ends of the sections are abutted tightly together making one continuous, even tread for the trolleys. As one end fits into a groove in the adjoining piece, the connection is just as strong and rigid as any other portion of the track, and in addition it requires much less time and labor in erecting the outfit. The great strength of this connection is made possible by a bracket being placed near each end of the track. This construction will not allow the ends of the track to separate, but assures a rigid joint that will hold securely under all conditions.

We use a tough steel bracket, mortised through the track and riveted on. These brackets have a heavy flange on each side and a brace below to hold the track in place. This adds materially to the stiffness of the track and gives it great strength. Made in 4, 6 and 8-foot lengths.

Louden's Stay Rollers

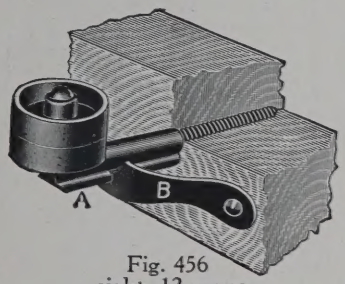


Fig. 456
eight, 12 ounces.

Fig. 456. This roller is screwed into the wall to suit the thickness of the door; and brace B, is slipped over the rib A, and fastened to the wall by screws or nails, This prevents it from turning and getting the roller out of place.

Fig. 457. This roller can be adjusted to the thickness of any door, either before or after fastening to the building, by setting one nut.

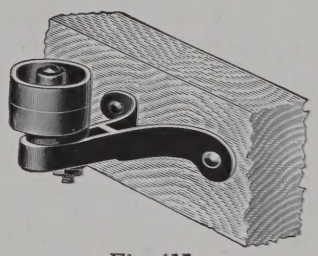


Fig. 457
Weight, 13 ounces.

Louden's Sliding Door Latch—Fig. 455

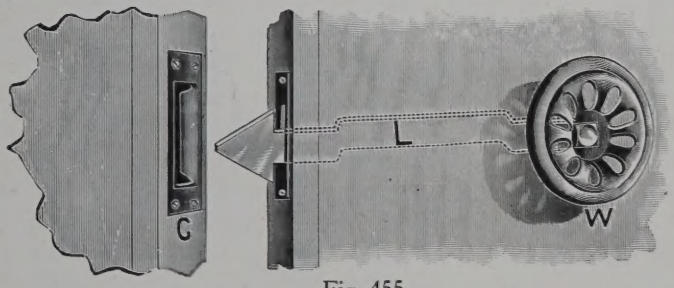


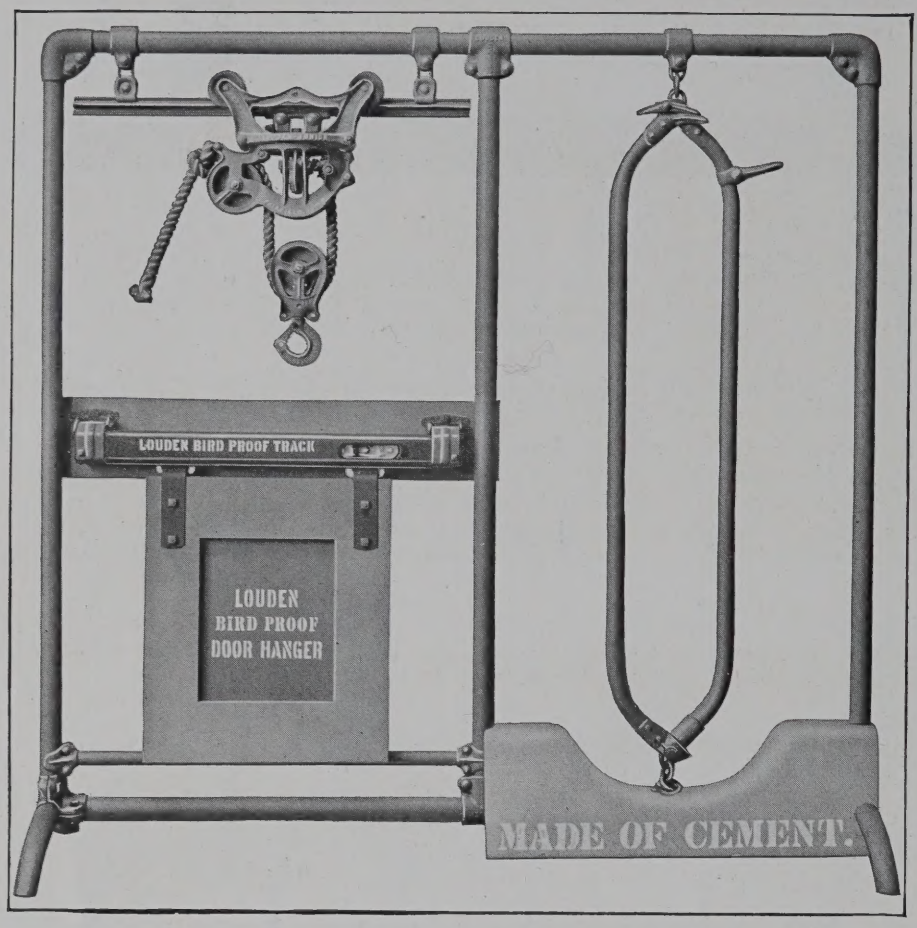
Fig. 455

Specifications

Latch can be used with any door that slides; is operated by means of a knob on one side of door and a handle on the other side—convenient and positive in action.
Consists of 3 parts, viz.: Latch with knob; metal catch for latch; metal strip for door with slot in which latch arm works.
Length of latch-point to center of knob, 8 inches.
Length of catch, 4 inches.
Diameter of knob, 3 inches.
Weight, 1 pound 6 ounces.

The latch is lifted and the door opened and closed by turning the hand wheel, W, which is generally placed on the outside, while the central part (dotted lines L) is bent to form a hand hold and comes on the inside or opposite side of door. The latch can be quickly and easily operated, yet is positive in its action and holds securely when closed. The catch, C, has flaring edges to guide the latch into it. It is reversible and may be used for right or left hand doors. Made of certified malleable iron, is strong and durable and can be used on double or single doors.

Louden Silent Salesman



Specifications

Height: 5 feet 4 inches.
Width: 5 feet 2 inches.
Shipping weight: 200 pounds.
Construction: Tubular steel with the smooth, dust-proof Louden connections. Model door, beautiful natural wood finish. Stanchion curb, wood painted to resemble cement.
Equipment: One Louden Junior Fork Carrier with short section of track and trip block; one model door with Louden Bird-Proof Track, having cut-out to show trolleys; one Louden Tubular Steel Stanchion equipped with upper and lower holders and stanchion guide.
Any sling or fork carrier may be substituted for the Louden Junior.
No charge for substituting "Raintite" Track for Bird-Proof.

Gentlemen: We think this display which you furnished us has practically doubled our business in your line over the preceding year. It bears out the old statement that goods well displayed are half sold.
Seaman-Clark Hardware Co.
Albia, Iowa.

A Display For Dealer's Store

Every Louden dealer should have a Louden Silent Salesman working for him.

A Silent Salesman is a producer—not an expense. It is the greatest creator of sales for barn equipment ever put in a store. It is attractive—has the different articles in actual size so they may be examined and operated.

It is neat and convenient—a handsome fixture that is a credit to any store.

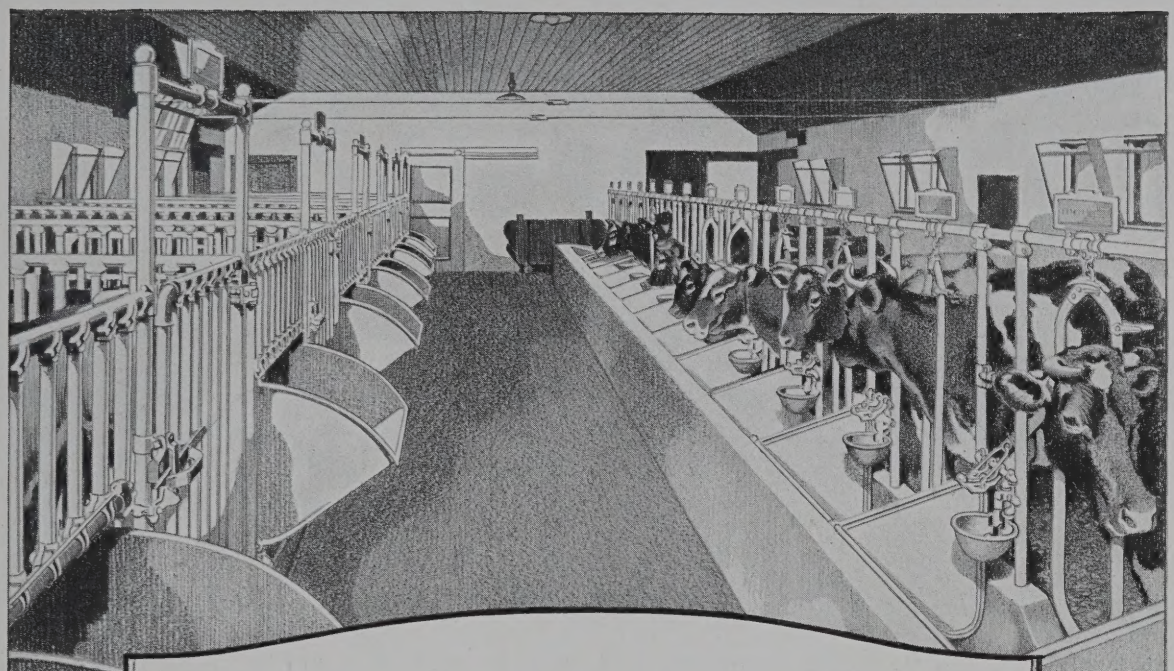
Hay carriers, especially, have always been hard to demonstrate, but with a Silent Salesman the customer will often "sell himself" before he mentions to the merchant that he needs an outfit.

Many dealers have laid the foundation for a big stall and stanchion business with the Silent Salesman. Many dealers who never sold a steel stanchion before ordering the Salesman are now doing a nice stall business because it calls to the attention of customers entering the store articles of Dairy Barn Equipment needed.

On special orders any hay sling or hay fork carrier desired may be substituted for the Louden Junior, and, if desired, "Raintite" track may be substituted for the Bird-Proof track.

Send us your order for a Silent Salesman. It will help you build up a big barn equipment trade.

We have *hundreds* of letters from dealers who are enthusiastic over the results obtained.



LOUDEN

Steel Stalls - Stanchions Pens - Water Bowls - Etc.

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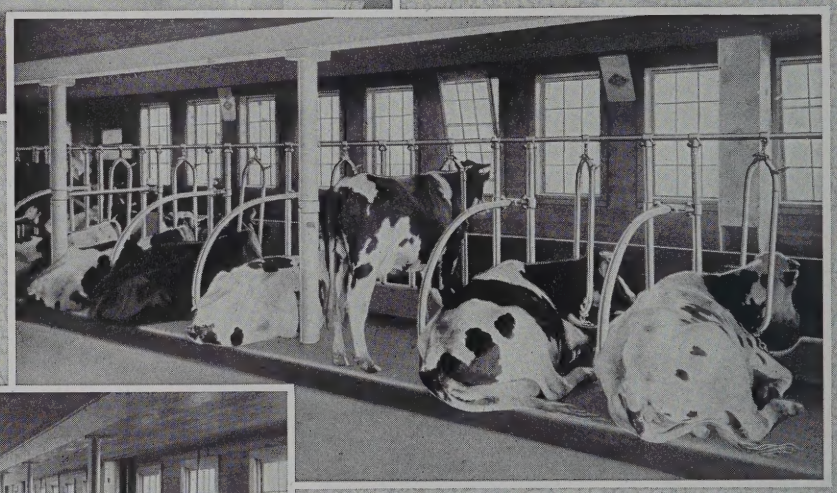
William Moscrip, Lake Elmo, Minn., noted Holstein Breeder, uses Louden Stalls and Pen Equipment throughout his barns

The attractive, well arranged barns with plenty of windows on the Moscrip Farm

Lots of sunlight—clean and sanitary—in the cow barn

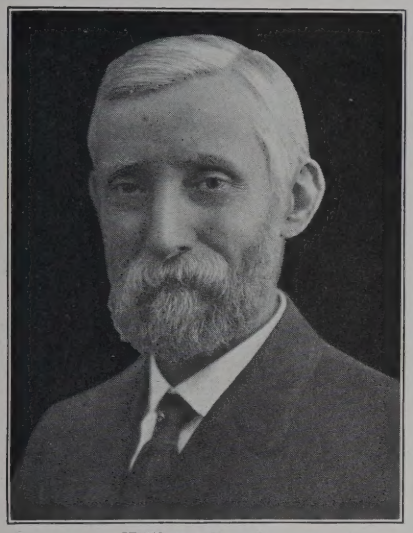


Perfect Cow Comfort—standing or lying—in Louden Stalls and Flexibly Hung Stanchions

Where Future Prize Winners get the right start under excellent conditions in Louden Calf Pens

The Equipping of Dairy Barns

By William Louden



William Louden,
Founder.

Milk production is the foundation of the dairy business, and anything that will add to milk production and make it more economical or profitable is important and should receive the most careful consideration.

It is well known that the cow is a sensitive animal, and that she will respond readily and liberally to comfortable surroundings — to kind treatment. She has the power of withholding her milk, and will divert her energies from its production to the protection of herself against uncomfortable or unsanitary conditions. This fact is known by all who have given attention to the subject. In numerous instances milk production has been increased from 30 to 40 per cent by making the cow more comfortable, and by giving her more sanitary surroundings.

This fact is further attested by the great increase and growing popularity of modern steel dairy barn equipment. The old style wooden stalls and stanchions, which were little better than ancient inquisition stocks, with their filthy, unsanitary features added to that of positive cruelty—seriously curtailing milk production, injuring the cows and making barn work harder—have been condemned, and are being rapidly discarded. It makes no difference how large or how small the herd, whether it consists of two or a hundred cows—whether the owner is an exclusive dairyman or a general farmer—he cannot afford to use this old style, out-of-date equipment.

In making the change from the old to the new, or in selecting a new equipment for the first time, the question arises as to *the kind of equipment to use*, and the purchaser is sometimes puzzled in making a choice. One of the objects of this catalog is to assist in making a wise selection. Of course, the primary object is to point out the superior qualities of the Louden goods, but, in addition to this we desire to furnish the information necessary to enable the purchaser to get what will best suit his needs.

Above everything else we desire *satisfied customers*—customers who will not only be satisfied for the time being while the novelty is new, but who will *continue to be satisfied* as the years go by—the customers who will always be glad to *speak a good word*. These are the kind or customers required to build up and maintain a permanent business.

A dairyman having four barns, three of which are fitted with Louden equipment and the other one with an equipment of another make, being asked why he did not use Louden in the other barn, replied, "This was the first barn we built and we profited on our other barns by our mistakes on this one." It is wise to profit by the mistakes of others.

Two of the prime essentials in a dairy barn equipment are *cleanliness and comfort for the cow*. The cow should be made as comfortable in her stall as she is in the pasture. In short, "Pasture Comfort" is the condition to be sought for. While being securely held in place in the stall, she should be absolutely free to lie down to one side or the other, and to turn her head, or to lick her sides, without cramping her neck in the least, or straining herself in any way. A cow rarely lies down squarely in the middle of the stall, but nearly always at one side or the other. Therefore, the stanchion should always be anchored to the curb by a *single slack chain* that will permit its lower end *to swing in a circle of 8 to 10 inches*. No other arrangement will fill the bill.

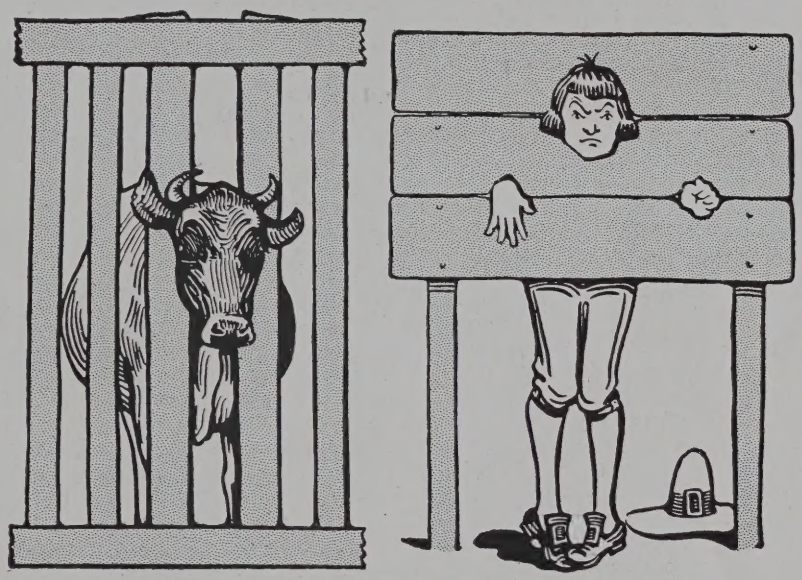
Give your Cows the Comfort and Freedom of Louden Swinging Steel Stanchions and watch the Milk Yield Jump! They respond liberally to good surroundings. State Hospital Barn Middletown, Conn.

Cramped and Miserable in Rigid Wood "Stocks"

Comfortable and Contented in Louden Steel Stalls

A cow in getting up and lying down always pitches forward. Consequently the stanchion must be free to swing forward and back or she will be sure to jam her shoulders against it. When held by a stanchion too rigidly anchored the cow will sometimes make several attempts to rise before she succeeds and will jam her shoulders with each attempt. This condition should not exist. The lower end of a swiveled or swinging stanchion *should always be sloping or well rounded,* and *never anywhere near square or flat;* otherwise the cow will be liable to get her foot caught between the manger curb and the lower square end of the stanchion and have it severely injured. This cannot happen when the stanchion has sloping ends.

Cleanliness is equally as important as the comfort of the cow. "Sanitary," is the word generally used. Everything nowadays is "Sanitary," even "Sanitary" garbage cans. The word "Sanitary" being so badly overworked, we prefer to use the word "Cleanliness." The way to keep a dairy barn "Sanitary" is to make it so it will be *easy to clean* and *easy to keep clean.* It will not and it *cannot clean itself.* There should be no cracks or crevices anywhere to catch and hold dirt. Neither should there be any recesses or pockets in which dirt can collect, nor bars or pipes under which it can gather and be difficult to remove—difficult to keep clean.



Equally Comfortable

Especially is it necessary that the manger and the manger curb over which the cow has to eat should be constructed to afford *no refuge whatever for dirt.* Any attachments placed on the curb are liable to become "*dirt catchers.*" In getting a new equipment be sure to avoid everything which may become a "*dirt catcher.*"

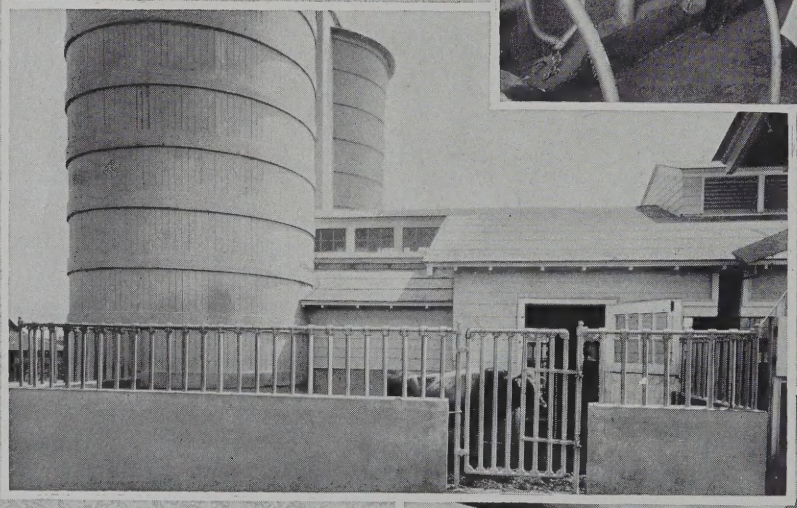
Plainness, smoothness and simplicity are the things to strive for and not the addition of attachments which are frequently mere "talking points" having no real value. In this way only can you have stalls and mangers that will be most nearly free from "dirt catchers," that will be truly " Sanitary."

We have always made it a point to cut out non-essential attachments and to make our stalls and stanchions, and pens and other equipments as plain and smooth as possible, and to have no sharp corners which might injure the animal. Also, to properly proportion the parts so that no added attachments of any kind will be needed. An examination of this catalog will show how well we have succeeded.

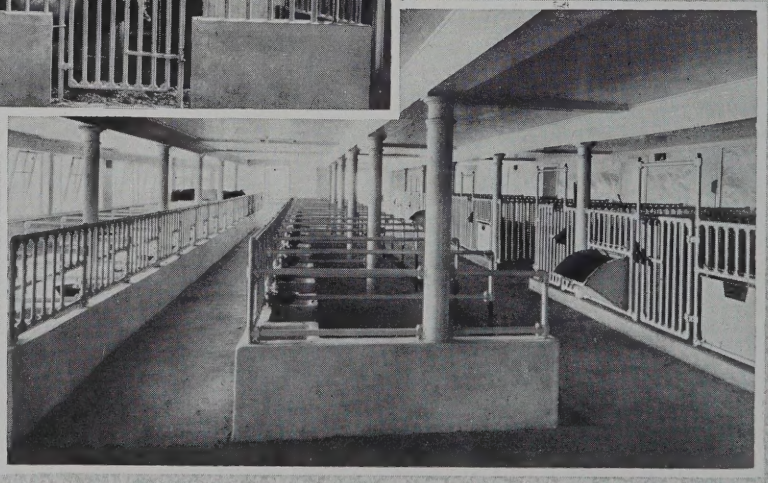
We have had the longest and largest experience in designing and manufacturing barn and stable equipment, our business being established over fifty-six years ago. We do not, however, rely on past achievements. We realize that the *world moves* and that an article which was good enough in the past may not be good enough for the present. We are always striving to make our goods better, and each year we bring out many new improvements that keep us abreast of the times.

Plenty of Water, Fresh Air and Comfort in Louden Sanitary Equipment
Kilby Dairy Barn,
Montgomery, Ala.

Clean milk from Contented Cows at F. J. Bannister's Dairy, Kansas City, Mo.



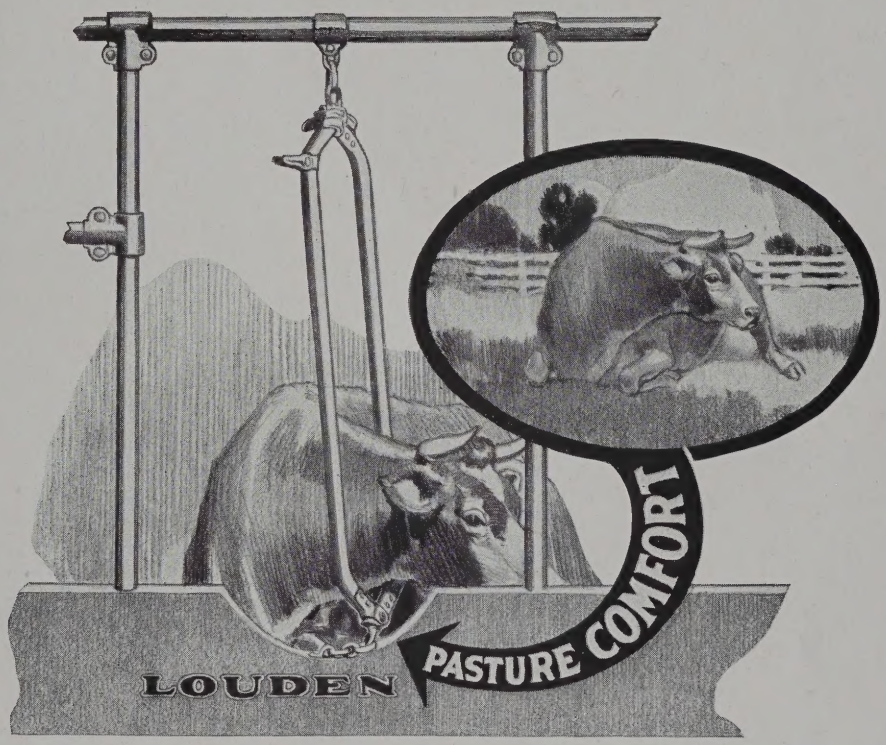
Safe Quarters and Plenty of Exercise for the Herd Sire in the Louden Bull Paddock
Methodist Home,
Waco, Texas



Louden Panel Stalls and Cow Pens. Clean, Labor-Saving and Attractive
John M. Dennis,
Lutherville, Md.

Our long experience teaches that every change is not an improvement. Sometimes the most "taking things"—things which for awhile will furnish the greatest selling points, do not *make good* when put to the test of time. We strive to avoid all such things no matter how alluring they may be, and spare neither time nor expense to *make sure* that our improvements are *genuine* and not merely fads or fancies which will soon pass away.

During the last few years we have given much time and study to the *standardization* of our goods. Our *Standardized Concrete Mangers* for cow stalls and our improved methods of constructing them are the greatest improvements made in dairy barn equipment during the last decade. Agricultural Colleges throughout this and other countries have adopted our Directions for the instruction of their classes in the proper method of making mangers for cowstalls.



Perhaps some who read this catalog and look at the elegant equipment shown will think it is "only for the rich." This is a mistaken idea. Louden Equipment is made for persons of moderate means as well as for those who have greater wealth, and it is *within the reach of every farmer.* Standardization enables us to produce better goods at less cost and we are always glad to give our customers their full share of the benefits resulting therefrom.

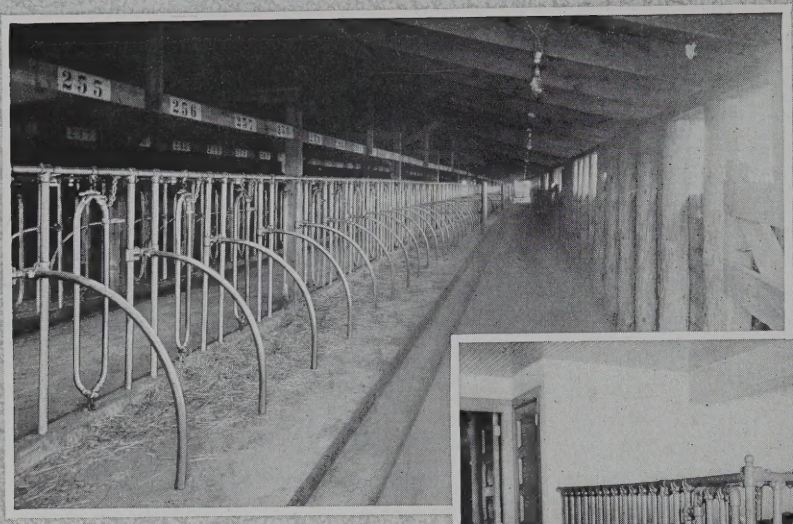
We do *not say,* nor wish to intimate, that if any one buys our equipment, he will "get rich quick" or immediately become a millionaire. Such claims would not interest sensible people. We *do say* that our equipment is, not only *the best that is made,* but that it will return *a good profit on the investment* whether the purchaser is rich or only in moderate circumstances.

We are particular to use the best material in the manufacture of our goods, and to have everything strong and durable. We have a thoroughly equipped, up-to-date factory and ample facilities to properly handle the business. We have our own galvanizing plant and malleable iron foundry and this catalog will give evidence that we have the largest and most complete line of Dairy Barn Equipment in the world.

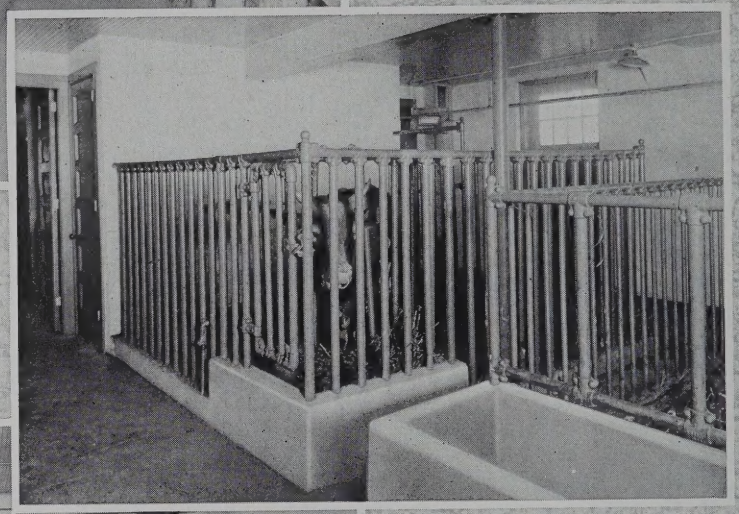
We have Branch Houses in several leading cities. Our goods are also carried in stock in various parts of the country. In every way we strive to give not only the very best goods which can be made, but also the very best possible service. Upon this basis we solicit your patronage.

William Louden.

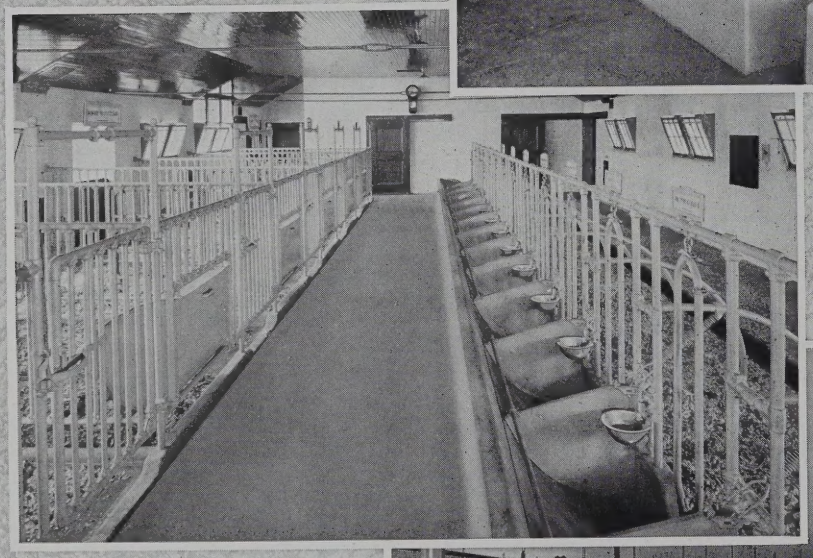
Founder



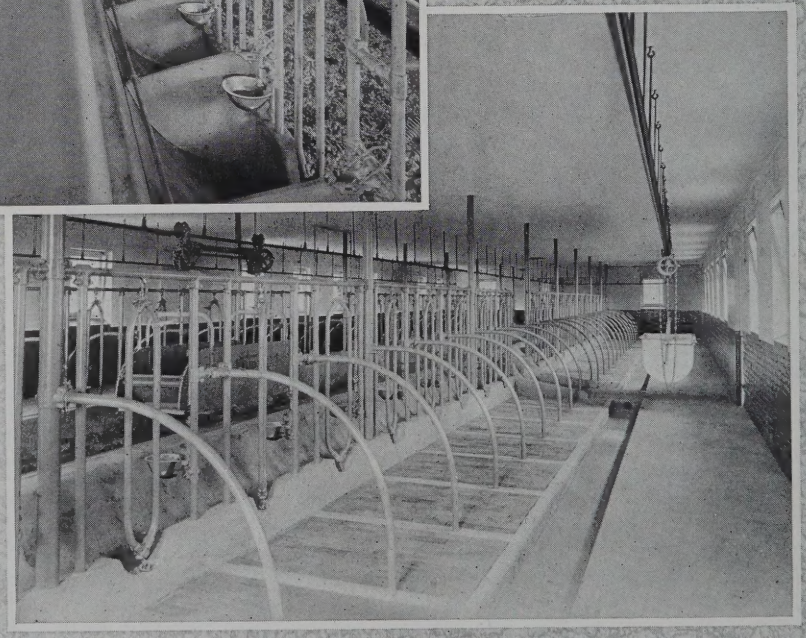
Where strength and durability count—a fresh bunch of 400 range cattle is stanchioned every day in Louden Stalls
South St. Paul Stockyards,
St. Paul, Minn.



Safety First in the Louden Bull Pen. All uprights project into solid cement
C. H. Morse, Jr., Barn,
Libertyville, Ill.



Louden Stalls and Pens set down into solid cement, line up perfectly
Langwater Dairy,
North Easton, Mass.



Louden Stalls are strong, smooth, neat and extremely simple in construction
State Hospital of Criminal Insane,
Fairview, Pa.

The Material Used in Louden Stalls and Pens

All Tubing is Open-Hearth High Carbon Steel

Not Black Pipe—not Merchant Pipe—not Gas Pipe nor Wrought Iron Pipe, but *High Carbon Steel Tubing* made out of the exact formula used in making Railroad Rails. *Open-Hearth* steel and not *Bessemer* steel. That's the material used in the Tubing that goes into every Louden Stall and every Louden Animal Pen. We use *High Carbon Open-Hearth* steel in preference to Bessemer because in it such impurities as sulphur and phosphorus have been driven off leaving the tough, strong, durable metal—a metal that insures lasting service. Commenting on the quality of Open-Hearth steel, John Howe Hall, one of the foremost authorities on steel says:

"For some time past, engineers have specified Open-Hearth steel for high grade structural purposes, believing that its superiority to Bessemer steel is sufficient to justify its use wherever quality is important."

Because we believe that quality is of vast importance in the building of Barn Equipment, we use Open-Hearth Steel Tubing in preference to any other kind. It is the assurance of highest quality.

Smooth, strong, tough and lasting—Louden Open-Hearth High Carbon Steel Tubing has the ideal texture and character to withstand every condition that a stall or animal pen has to meet in the barn. You know the long life and exceptional strength of railroad rails and how they withstand the worst kind of weather conditions. That's proof of quality. Years after Louden Equipment is installed you can expect to find it still strong, serviceable and in good condition because it is made out of the same high grade Open-Hearth Railroad Rail Steel—because in every piece there is a quality metal that makes for long life.

Fittings Made of Certified Malleable Iron

All couplings that connect Louden Stalls and Louden Animal Pens together are made of *Certified Malleable Iron*—the highest grade of malleable iron made. To be *"certified,"* malleable iron must meet certain unusually high requirements. It must have a tensile strength of 50,000 lbs., per square inch. Not only must it be tough enough to withstand this enormous strain but at the same time it must be capable of undergoing as much as a 10% stretch without breaking. The iron produced daily must come within these specifications if it is to be so classified.

Louden Malleable Iron has been certified for years. With an average tensile strength of 54,400 lbs., per square inch and an elongation of 20%, it more than meets the requirements for certification and is one of the highest grades of malleable iron that can be produced. "No chain is stronger than its weakest link," is an old but true saying. Therefore, strength and durability are just as important in the fittings as in the other parts of the stall or animal pen. Quality in the tubing, quality in the couplings, quality in every detail regardless of how small it may be—that is the Louden standard—that is what every user can expect in Louden Equipment.

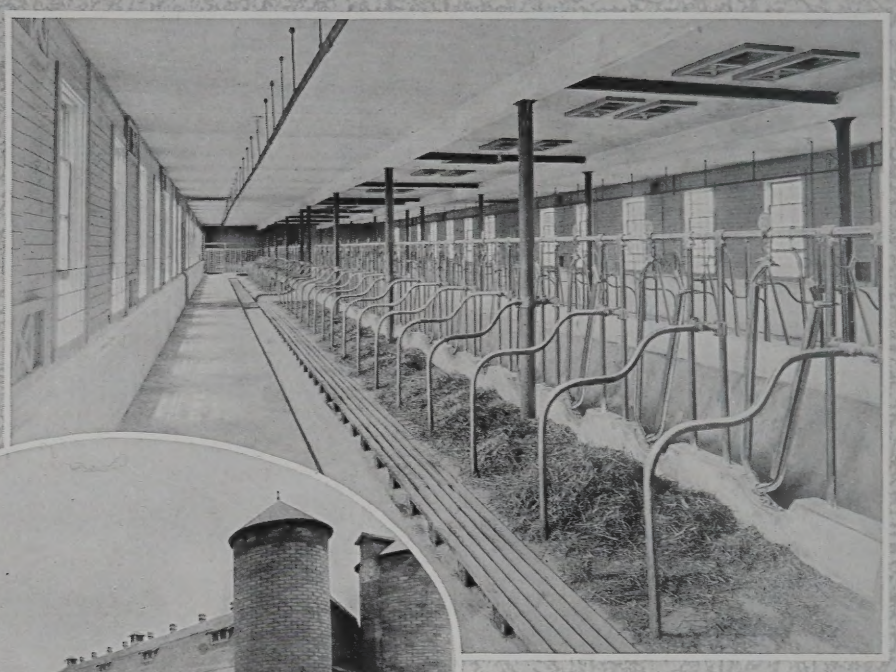
Rolled Thread Bolts for Utmost Strength

And all couplings on Louden Stalls and Louden Animal Pens are strongly clamped together by means of rolled thread and not cut thread bolts. The Open-Hearth basic steel out of which they are drawn contains the exact carbon content that exhaustive tests have proved to be the proper amount in getting a bolt of the greatest strength. Further, all Louden rolled thread bolts are strictly U. S. Standard thread.

We use rolled thread bolts in preference to cut thread bolts because they are accurate and at the same time are a great deal stronger. The outside skin is the toughest portion of the bolt shank, therefore when you cut this skin thread deep—you break this toughest part—you cut away 50% of the material in the threaded portion of the bolt. In a rolled thread bolt nothing is cut away—this tough skin—all of these fibers are retained intact. Below note the strength of the two bolts:

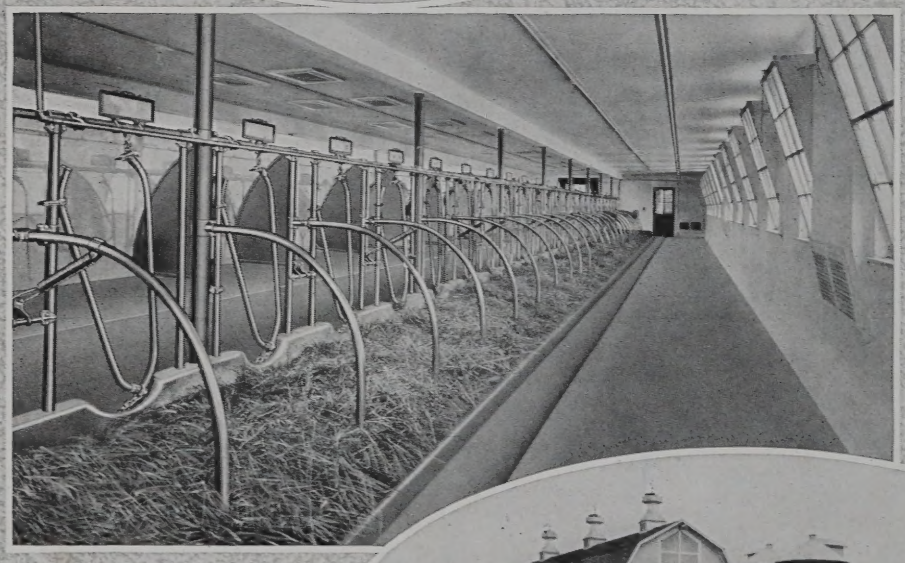
Strength Tests of Rolled vs Cut Thread Bolts

Kind of Bolt	Diameter of Bolt	Tensile Strength				Stretch in Two In.
		When Entire Bolt was stretched		Stretch Per Square Inch of Section		
		Yield Point	Breaking Point	Yield Point	Breaking Point	
Rolled Thread Basic....	½ inch	6,700 lbs.	9,450 lbs.	36,200 lbs.	51,800 lbs.	18%
Cut Thread Basic.....	½ inch	5,000 lbs.	7,150 lbs.	26,400 lbs.	37,700 lbs.	16%



Louden Stalls erected all at one time — projecting down into solid cement line up perfectly
State Penitentiary, Stillwater, Minn.

Attractive exterior of above barn



Louden Equipment set in solid concrete is as lasting as the barn itself
Edward Gillette, Westfield, Mass.

Louden Equipment inside the Gillette barn is in keeping with the substantial, attractive construction of the outside

Time and Experience Have Proved the Superiority of the Louden Method of Installation

The method we recommend for installing Louden Stalls and Animal Pens not only simplifies the work, but insures a perfect and *permanent* installation. It can be carried out at the lowest cost and without the employment of high-priced concrete workers.

Since originating modern barn equipment, Mr. Louden has experimented with every conceivable method of erection. He recommends this method simply because his years of experience have proved to him that it is the best. We send the complete equipment in one shipment—not a little by express and the rest later on. By this, the Louden method, *there is no necessity of waiting for the last shipment to arrive before finishing up the concrete work.*

When structural engineers use steel and concrete for strength and permanence in structural work, the steel is imbedded in the concrete, wherever possible, and not fastened to it in a makeshift manner. For years Louden Equipment has been set solidly in concrete and thousands upon thousands of installations amply testify to the permanence and enduring satisfaction that the Louden method of installation insures.

Perfect Alignment, Permanence of Installation, Ease and Economy of Erection are Louden Features

Exact alignment in every detail is one of the most pleasing features of a modern equipped barn. Misalignment is most noticeable and annoying. The fundamental simplicity of the Louden method of installation is assurance of a finished job that is perfectly lined up. We long ago realized that perfect alignment could not be obtained by piecemeal erection. And that once an installation is made it cannot be changed, except at great expense and trouble. Even then a patched-up job is the best that can be made of it. The perfect alignment, so easily obtained by the Louden method of installation, is maintained through the years because the stall posts and stall partitions are solidly imbedded in concrete.

Permanence is one of the all-important reasons for putting in modern barn equipment. It is, therefore, economical to get the best equipment possible and put it in to stay. A boy can understand the simple, yet complete directions which we furnish for the installation of Louden Equipment. It is not necessary to employ high-priced concrete workers. Less expensive, unskilled labor will do just as well.

All wasteful cutting of lumber for forms is avoided. If you desire to put in the High Built-Up feed saving Louden Curb, our cut-out forms make it easy by molding the depressions under the stanchions and holding the stanchion fasteners in place while the concrete is being poured. When the job is finished all upright posts and all stall partitions will be in perfect line, deeply imbedded in solid concrete to stay—the strongest and most satisfactory installation possible for this year, next year and for years to come. The Louden *permanent* method of installation insures *permanent* satisfaction.

No Waiting to Finish up Concrete Work

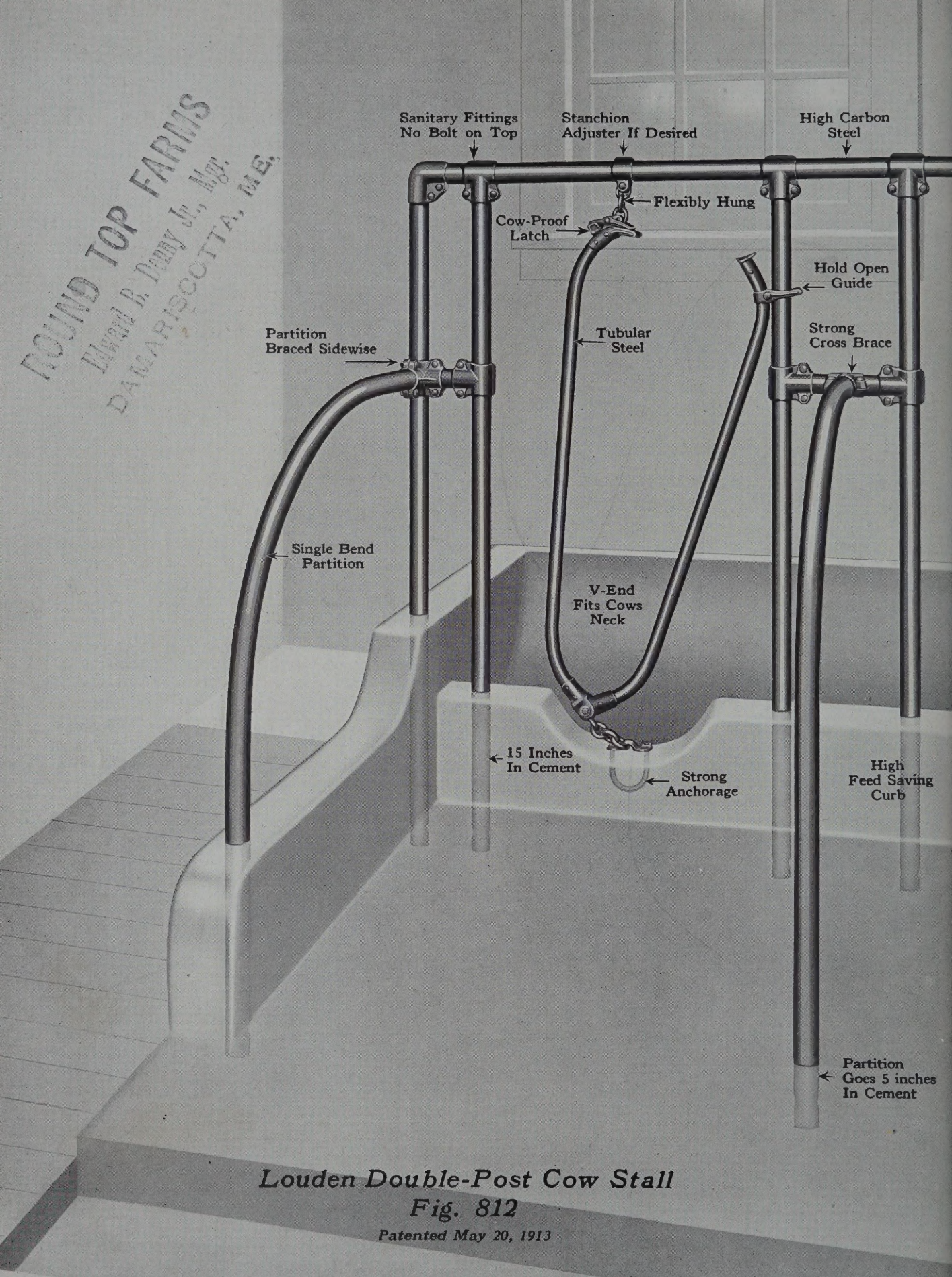
Some years ago we tried out the plan of sending out stall post anchors in advance of the main shipment of equipment, with the idea in mind that the curb anchors could be placed, most of the concrete work finished, and the remainder laid after the equipment arrived and was fastened in place.

In theory this method of installing seemed good, but in actual practice it was not. The anchors would arrive and the concrete work would begin. But despite all schemes it was well nigh impossible to get all anchors properly spaced to fit all bolt holes. With an anchor but a trifle out of plumb, the top of the stall post would be thrown entirely out of line and these small mistakes proved serious after the concrete had set.

It was not possible to finish the concrete work anyhow. *Anchors were not used on the stall partitions* which had to be imbedded in solid concrete to withstand the side strains and dampness. A double hitch was required before the concrete work could be completed and *there was no time saved by attempting to use anchors.* Entirely aside from the insanitary and weak constructive principle of the anchor plan, its appearance as an easy and economical method of installation was purely deceptive.

Although we continue to manufacture anchors and can furnish them when desired, we do not recommend their use. We long ago refrained from encouraging this type of installation for the simple reason that it is not in keeping with the Louden standard of what good barn equipment should be. We advise our customers to finish the job when they start it and to imbed the equipment solidly in concrete. Years of experience with thousands of installations have proved to us that this method is best.

ROUND TOP FARMS
Edward B. Perry Jr., Mgr.
DAMARISCOTTA, ME.



Louden Double-Post Cow Stall

Fig. 812

Patented May 20, 1913

Louden Cross Braced Double-Post Cow Stall — Fig. 812

Specifications of Standard Size

Size of Tubing: The stall posts, stall partitions, top-rail and cross brace are all made of the best quality of 1⅝" O. D. high carbon steel tubing (not soft gas pipe)—smooth and exceedingly strong.

Couplings: All couplings are made out of the highest quality of Certified Malleable Iron.

Width: The standard width of the stall is 3 feet 6 inches (42 in.), but this may be varied to fit requirements and the top-rail will be cut to suit.

Height: The total height above the stall floor is 5 feet 3 inches (63 in.). The standard height of the manger curb at the sides is 11 inches and at the bottom of the cut-out where stanchion is anchored, is 6 inches. (Its lowest point is still as high as the ordinary low level curb sometimes used.) Distance from stanchion fastener to the under side of top-rail, 4 feet 7 inches (55 in.).

Length of Posts: The stall posts are 5 feet 5 inches (65 in.) long and with the standard High Built-Up Curb they go 15 inches into the cement. The lower ends of posts and partitions are indented to insure a firm hold.

Stall Partitions: The cut shows our No. 39 Single Bend Partition described on page 100 which we recommend and which we furnish unless otherwise specified. The lower end of the partition goes 5 inches in the cement. It stands 3 feet 6 inches (42 in.) above the stall floor at the inner end and extends back 3 feet 3 inches from center of curb at the bottom. Our No. 2 partition, described on page 100, will be substituted if preferred.

Stanchions: The cut shows our Tubular Steel Stanchion, Fig. 861, described on page 114, which we recommend and furnish with stalls unless otherwise specified. If preferred, we will furnish our Wood-Lined Stanchion, Fig. 937, at the same price, or our Five-In-One Stanchion at a slight additional cost.

Finish: All the parts except the lower stanchion fasteners which are sherardized, are finished with Special Silver Gray Enamel, baked on, or will be galvanized if ordered.

Illustration: The cut shows one Stall and one End Section on the cross alley where the end curbs are located. When there is an alley at each end of a row of stalls, an extra end section is required for which an extra charge will be made.

812 Stall Complete includes: 2 Stall Posts; 1 Stall Partition; 42 inches of Top Rail (more or less); 1 Cross-Brace, 10 inches long (more or less); 5 Interlocking Dust-Proof Couplings; 1 Tubular or Wood-Lined Stanchion; 1 Stanchion Holder (Adjustable Holder furnished only when specified); 1 Guide or "Hold-Open" for Stanchion and 1 Lower Stanchion Fastener.

End Section Complete includes: 2 Stall Posts; 1 Stall Partition; 1 Cross Brace, 4 inches long; no Top Rail; 2 Interlocking Dust-Proof Couplings; 1 Right Angle Corner Coupling and 1 Single Piece Elbow.

Weights: The Standard 812 Stall complete with Tubular Stanchion and 42 inches of top rail weighs 70 lbs. (Where extra attachments such as upper and lower stanchion adjusters, etc. are included, stall weighs around 85 pounds.) The Standard End Section, complete, no top-rail, weighs 45 lbs.

Important: We use the very highest grade of high carbon steel tubing made, and not soft gas or merchant pipe which is inferior material for cow stalls. Louden Stalls are built to last as long as the barn stands.

Note: Stalls wider or narrower than 42 inches and requiring longer or shorter top-rail will weigh a pound or two more or less. The Wood-Lined or Five-In-One Stanchion will also add a little to the weight.

When one end of a row of stalls is joined to a wall, the end section at the other end will be counted as a part of the stalls and no extra charge will be made.

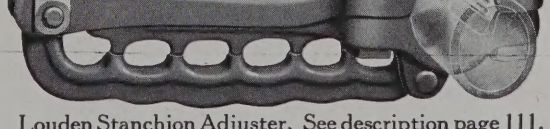
For a large herd or a small one—for an old barn or new—for professional dairying or general purpose farming, you'll find this time saving, money-making, "Pasture Comfort" Stall 100% profitable. Your cows themselves will pay for it—in a few months—and after that what it saves each year will be *Net Profit.*

The **Louden Cross Braced Double-Post Stall Fig. 812** is not only the best but is also the most popular cow stall ever manufactured. The reason why is best told by some of its most prominent features.

Perfectly Proportioned. The stall posts are so spaced that with the Louden flexibly hung stanchion there is ample room at either side for the comfort of the cow. The posts are set the proper distance apart to let the stanchion open wide enough to receive the cow's head, and yet not so wide that the cow can walk right through it. This is one of the objectionable features of single post stalls. It is entirely overcome in the Fig. 812 stall.

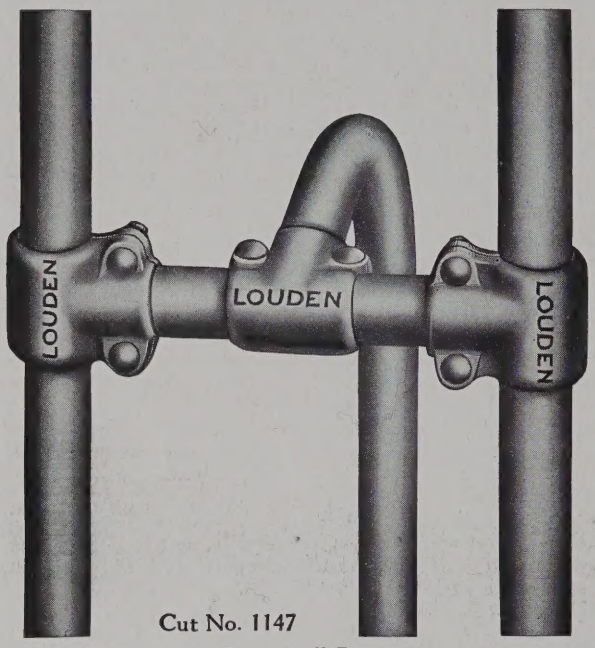
No Attachments Needed. With single post stalls the cow is liable to place her head in the space between the stall post and stanchion and to prevent this, attachments of different kinds are used to, at least, partially remedy the defect. Nothing of the kind is needed with the 812 stall. While the posts are set wide enough apart to give the cow ample freedom to lie down at one side or the other, and to turn her head or lick her side without cramping in the least, the space is not so wide that the cow is liable to get her head in the wrong place. There is just *one place* where the cow can put her head and that is in the *open stanchion;* and it will never be so wide open that she will be tempted to force her body through it.

Simplicity of Construction. There are no complicated parts about this stall to get out of order and cause trouble. In addition to the stanchion, it consists of the *continuous top-rail,* the upright stall posts, the *cross brace,* and the curved stall partition with the necessary overlapping, dirt-proof, two-bolt couplings to hold the parts together. The cross braces are made of different lengths to suit different widths of stalls, whereby the *proper proportions are always preserved.*



Louden Stanchion Adjuster. See description page 111.

The Manger Construction. The illustration of the stall on page 94 shows the Louden type of manger built in such a manner that the cow will not root the feed over the front into the alley; also the *High Built-Up Manger Curb* (11 inches high) with a cut out where the stanchion is anchored so it will be the height of the level curb at this point. See page 101 for the many advantages of such a curb. By this means the cow cannot nose her feed back onto the stall floor and, at the same time there will be plenty of throat space for her to lie with her head low down in the manger or to freely turn her head to the side while in the stall. The illustration also shows our latest design of High Built-Up End Curbs, to prevent feed and bedding from getting out into end alley. These curbs save waste and keep a neater looking barn.



Cut No. 1147

Cross Brace strengthens Stall Posts—Impossible for Partition to turn with Side Strain.

Any style of manger or curb can be used with Louden stalls. However, these are big factors in the economical operation of the Dairy. For that reason we have studied carefully the requirements necessary and have designed those shown. We recommend them because their corners are so completely rounded—because they are so smooth and clean, because they are big feed savers and extremely practical in every other detail. We know they will show a daily saving to the user of Louden stalls—a saving not possible with the little shallow manger or the low curb.

All Stall Posts in Solid Cement Braced Together

The cut of Fig. 812 stall on page 94 shows how securely all stall posts, stall partitions and lower stanchion fasteners are imbedded in *solid concrete.* When the built-up Louden curb is used the stall posts will stand 15 inches in cement—11 inches in the curb and 4 inches in the stall floor. When the low level curb is used the stall posts stand 10 inches in cement. The bottom end of each post is crimped to give the cement a sure, tight, firm grip around the tube.

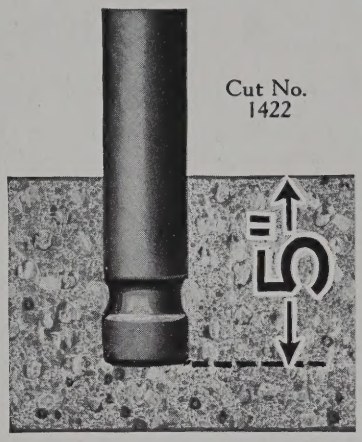
We do not use sawed off stall posts held at the bottom end only by light anchor straps which can neither be lined up properly nor held in place. Such could never meet the Louden standard for permanence. Furthermore experience has shown that such anchor straps cannot be used to fasten the stall partition to, being too flimsy and short lived for that purpose. Therefore even where speed in installing is the *only* thing considered, nothing is gained by using them for other parts of the stall since the cement work cannot be finished up anyway until the partitions are set. Louden stalls are always placed in solid cement. See page 94 for the Louden method of installing.

Note particularly the lower stanchion fastener which reaches nearly to the bottom of the cement curb. These fasteners are sherardized so they will not rust—so the nuts may be taken off at any time to substitute a larger or smaller stanchion if desired. The absence of pockets or other "dirt catchers" around the bottom of the stall posts and stanchion fastener is also a point of advantage in this Louden method of installation.

In addition to the above construction the posts in the Fig. 812 stall are braced together a little over half way up between the curb and the top rail. The cross braces are short pieces of tubing, the same size and quality as the posts, and are connected thereto by Louden Interlocking Dust-Proof Couplings.

These cross braces greatly strengthen the upright stall posts but in addition they give tremendous strength to the stall partition—it will withstand several times the side strain that it would were it clamped direct to one of the stall posts. This may sound extravagant, but it is true as will be readily seen by an inspection of cut No. 1147. When the upper end of the stall partition is clamped to the vertical stall post as is commonly done, no matter how tightly the clamp bolts may be drawn a side strain on the partition caused by a cow crowding against it will cause the clamp to slip around on the post and the partition to give way sidewise. By clamping the end of the partition to the cross brace, this cannot occur. The coupling would have to break or both stall posts would have to bend before the partition could give a particle. This is an extremely valuable feature found only in the Louden Fig. 812 stall. All of the above superior features mean strength and durability.

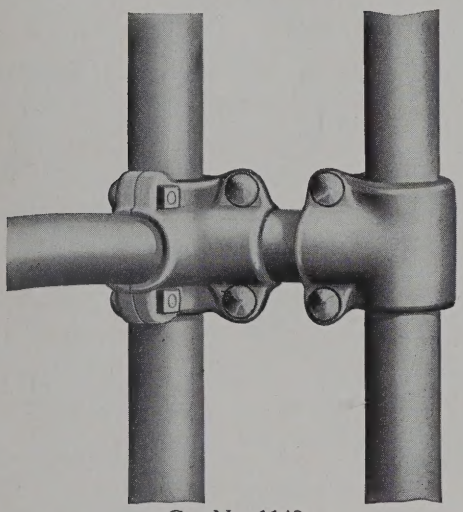
Stall Partition Anchored to Stay—Rigid



Cut No. 1422

Cut No. 1422 shows the secure anchorage of the partition on Fig. 812 Stalls—in fact on all Louden Stalls. Five inches in solid cement with the tube indented near the end—an additional assurance that the cement will get a firm grip and prevent the partition from ever pulling out or getting wobbly, regardless of the severe strains it may be put to. Like all other posts in the Louden Stall, the partition is installed in cement to stay—to be there for years without the necessity of repair bills.

Every dairyman realizes that the back portion of the stall floor, where the partition anchors, is usually the dampest part of the entire barn floor. For that reason insecure anchor straps placed in the cement, to hold the bottom end of the stall partitions on the surface of the floor are almost sure to rust out, break off or work loose. Aside from this they constantly collect filth and dirt. At best they are only temporary—in no way do they measure up to the Louden requirement for quality construction. Stalls set in cement line up perfectly—are absolutely rigid and solid—will last as long as the barn stands. The stall partition in solid cement—all other stall posts in solid cement mean permanence—that's the Louden standard. It insures an installation that will give years of satisfaction.


Cut No. 1148

End Partition Strongly Braced

The end partition, while arranged to stand flush with the end post on the alley, is as *solidly connected* as the center partitions, as will be seen by cut No. 1148. A short cross brace is clamped to an adjacent post and then this brace and the upper end of the stall partition is clamped to the end post by one of our corner couplings, as plainly shown in the cut. In this way the end partition is solidly connected to both of the posts, making it as secure as if it was clamped to one of the center braces connected to two of the center posts.

The Cow Comfort Stanchion

And remember, the famous Louden Tubular Steel Stanchion is included in the fittings for the Fig. 812 stall. Flexibly hung—this stanchion gives the cow the greatest comfort possible. As she lunges forward or backward in getting up or lying down it freely moves with the natural pitch of her body—no restraint whatever. It eliminates all danger of striking her knees against the curb—the flexibility gives her perfect pasture freedom. The V-shaped stanchion ends are the natural shape to fit the cow's neck when she's down resting. You wouldn't think of putting a square collar on a horse—call it a fit—expect him to be comfortable and do his best work. Well it's the same with the cow—there's a lot in the design—the shape of the stanchion—if she's to do her best.

In addition, the V-shaped ends of the Louden Stanchion protect the cow from injury—make it impossible for her to catch her front feet between stanchion and curb. This stanchion is exceedingly strong—it's made of the same quality material used in all Louden stalls—High Carbon Steel Tubing. It makes the ideal cow tie—smooth, easy to clean and easy to keep clean. Turn to page 114 for full description.

However, any of the Louden flexibly hung stanchions may be substituted for the Tubular if desired. Regardless of what stanchion you specify, it includes the guide or "hold open" as well as the holder connected to the top rail and the lower fastener set in the curb. Other fittings may be added to the stall, such as Manger Divisions, for separating the manger into compartments; Water Bowls and other items shown in this catalog.

A Stall That Meets Every Requirement

"It fills the bill in every particular"—best explains the reason for the vast popularity of the Louden Double-Post Cross Braced Stall, Fig. 812. It is well built, exceptionally strong, durable and of neat design. It is properly proportioned and is without any clap-trap attachments or objectionable frills of any kind. It is a thoroughly business stall. It insures the comfort of the cow. It is plain, smooth and simple in construction—easy to clean and easy to keep clean, thus filling every requirement of an up-to-date cow stall.

Louden Interlocking Sanitary Couplings

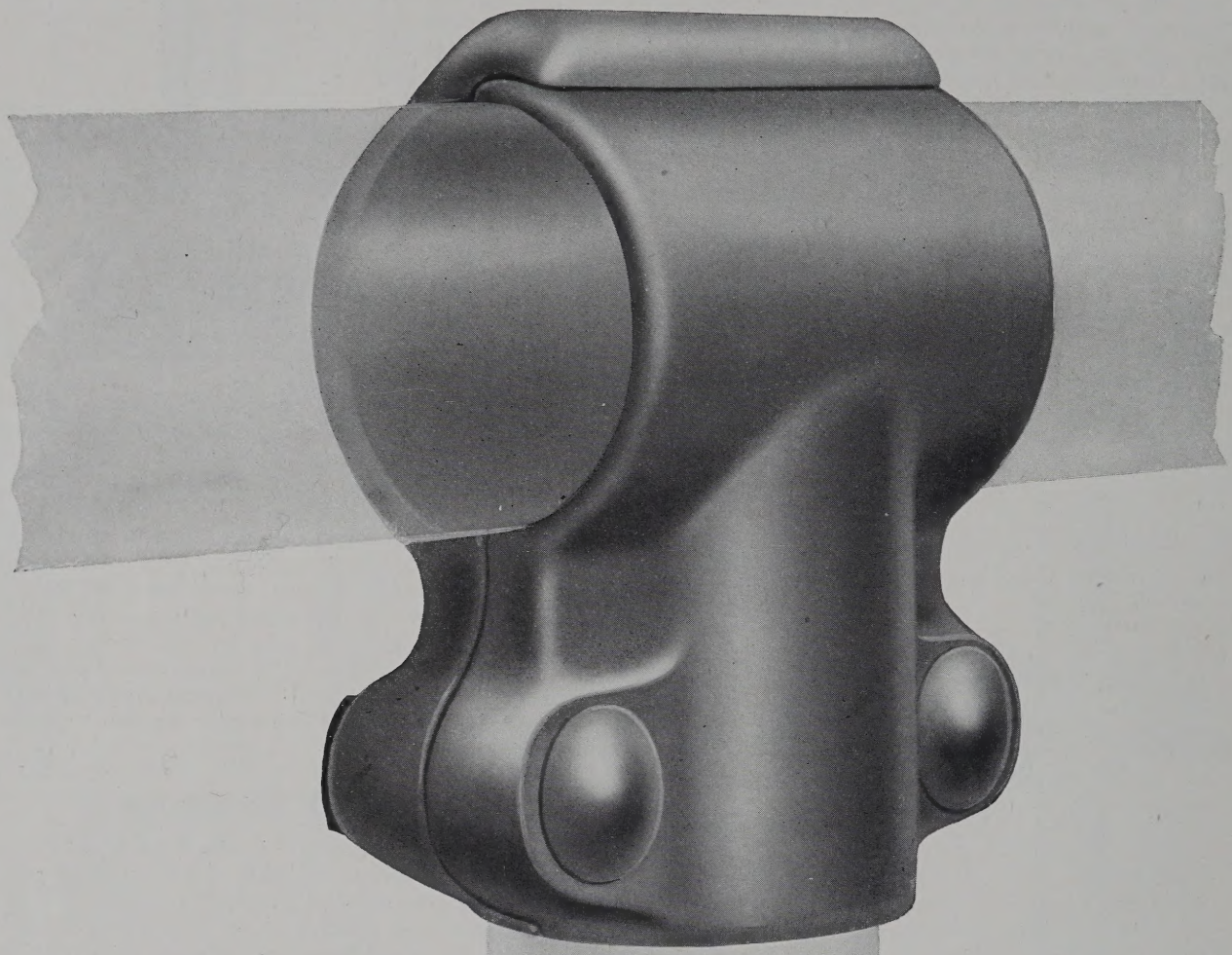
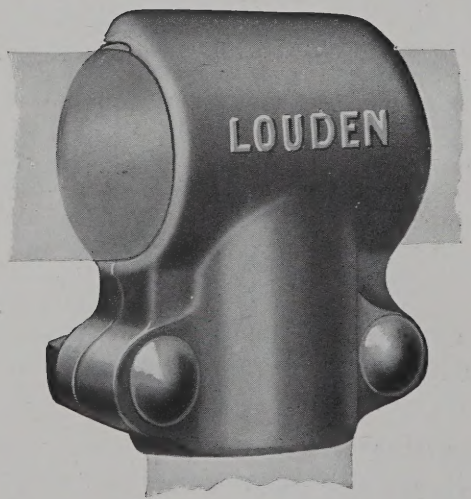
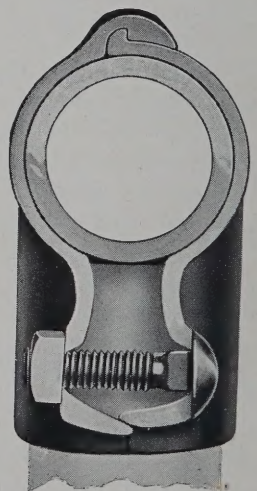


Fig. 933
Patented Sept. 20, 1910
Patented July 25, 1916



Opposite Side of Fig. 933. No Dust Catchers on This Connection. Only Two Bolts Required —No Bolt On Top.



Sectional View Showing Interlock at Top and Overlapping Edges below where the Two Castings Come Together.

Louden Interlocking Sanitary Couplings

The Fig. 933 coupling illustrated on opposite page is used to rigidly connect all main upright posts to horizontal rails in Louden Sanitary Steel Stalls and Animal Pens.

It is another factor that goes to make these Louden products quality constructed in every detail. Made of Certified Malleable Iron, designed with every ounce of metal properly placed for neatness and great strength, holding rigidly the tubing it encircles, this coupling will do its part in giving you the years of rugged service that you can always expect from any stall or pen bearing the name Louden.

The interlock at the top is an ingenius arrangement whereby no bolts at this point are required and the liability of dust, dirt or disease germs getting in a top opening is entirely eliminated by the smooth housing formed. As is plainly shown by the views on opposite page this interlock is made possible by one casting extending over and gripping onto the projection of the mate casting so that when the heavy bolts below are drawn up tightly both castings are solidly and rigidly locked. The edges of the two pieces of the coupling overlap so that not a single opening is to be found in which dirt can collect.

Entirely aside from the substantial and sanitary features of the Louden coupling, it is extremely easy and convenient to place—a wrench being the only tool needed. Its smooth, tight, clean-cut appearance also lends much to the attractiveness of any installation.

This Louden Invention Made Steel Stalls Practical

We were the originators of this type of fitting. While there were no steel stalls manufactured previous to the time Mr. Louden invented this coupling, there were nevertheless several attempts at wooden stalls with pipe partitions put together with ordinary plumbers' screw fittings. However such a method of connecting pipe was utterly impractical for building a complete metal stall because of the great expense involved and the expert labor necessary for erecting. It was not until this ingenius fitting was designed and the Louden all steel stall placed on the market that these difficulties were overcome and the way opened up to the dairymen of this country for a strictly sanitary steel stall at a reasonable price.

In the original invention, the two parts of the coupling were held together by two bolts below similar to the construction still used and one bolt on top—three bolts in all. But as time went on we soon found that the bolt on top not only added expense, but of still greater importance, its use made necessary a crack which was a regular "catch-all" for dirt and dust. It offered lodgement for disease germs. It did not meet the Louden requirement for sanitation. Therefore years ago we worked out the improved dust and dirt proof coupling here shown and discarded the old type of connection that was so hard to keep clean. Although identical in principle, the improved coupling has the famous interlocking feature that does away with the one extra bolt above—is stronger and is absolutely sanitary.

Erected with One-Third Less Time and Work

But the most interesting feature about the Louden Interlocking Coupling to the man who is erecting stalls or animal pens is the labor and time it saves him in putting the equipment together. With only two bolts to tighten instead of three, one-third of this labor is saved—a considerable saving in all. This is one of many reasons why Louden equipment can be erected so cheaply and easily.

We desire to call attention to United States patents number 970,737 and 1,192,216 on the Louden stall coupling and to warn all whom it may concern against infringements. These features are too valuable to let go by default. We are amply prepared to supply Louden couplings in any quantities upon reasonable terms. Therefore there is no necessity for buying infringing devices.

Louden Steel Stall Partitions

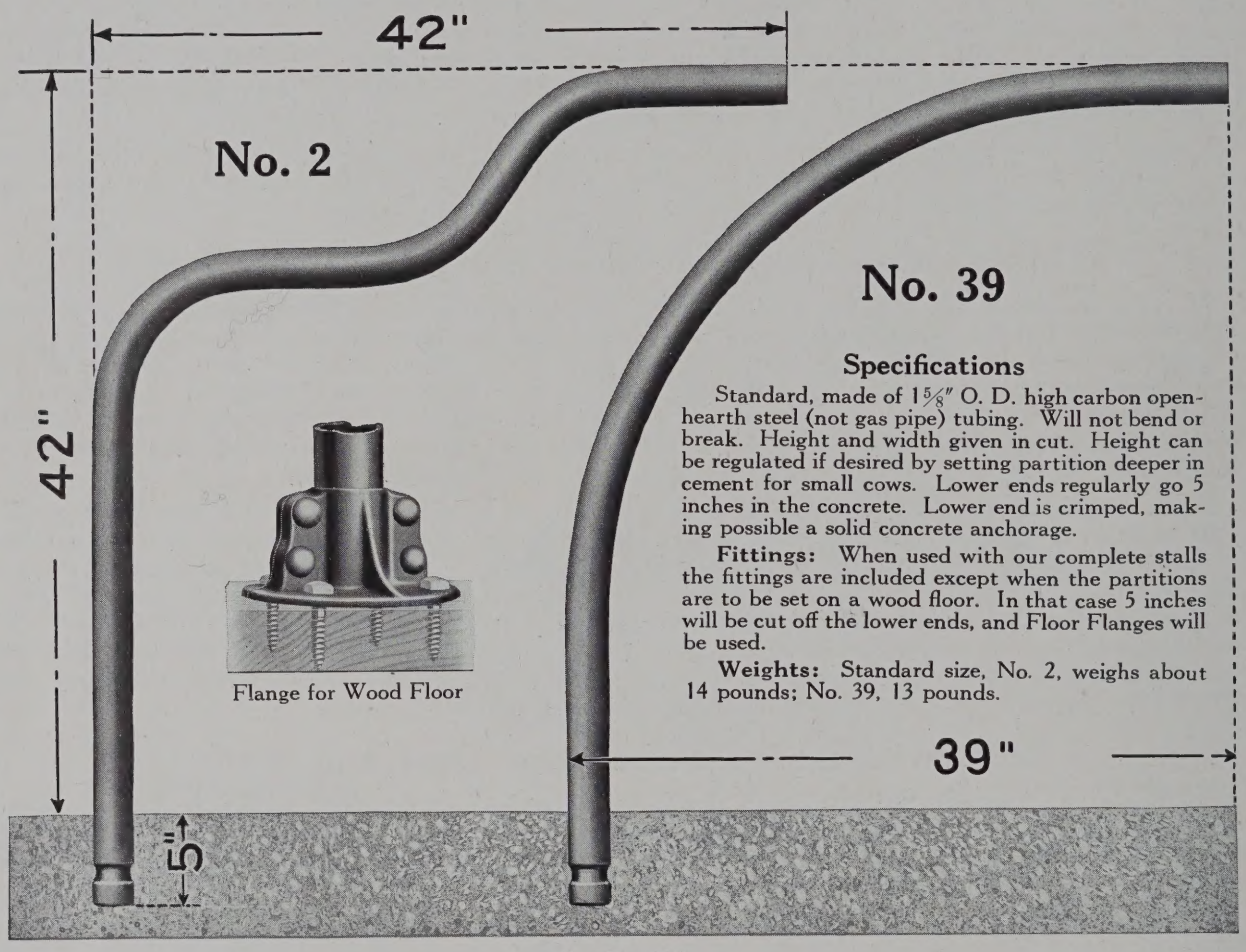
Protect Your Cows from Injury

The partition is an important part of every cow stall. It is of untold value in preventing a cow from stepping on her neighbor lying down—bruising her udder, crushing her teats or otherwise injuring her. Without partitions many a good cow is in this way ruined.

The partition also prevents the cow from turning crosswise in the stall and thereby crowding the cow on either side or soiling the adjacent stall floor. Frequently two cows will lie down so closely together that a third cow in between cannot lie down at all. This is not possible where stall partitions are used. In addition the stall partition is a protection to the milker and keeps the cow from stepping away from him. Besides this, it serves as a guard for the milking machine if you use one.

To get long years of service your partition must be strong and rigid. Therefore too much emphasis cannot be placed on the need for extending the lower end down into solid concrete—the Louden Way. When so erected the partition also acts as a brace for the frame of the stall besides performing all of its other functions in the most satisfactory manner. Otherwise, where merely fastened on the surface of the stall floor, partitions are apt to come loose, get wobbly or become entirely useless when placed under the severe strains they must withstand. The back portion of the stall floor is damp at times. This condition is hard on surface fastenings. Imbedding the partition down into the solid cement floor is the only sure and lasting method of installation.

Louden Stall Partitions Made in Two Styles


42"
No. 2
42"
5"
No. 39
Specifications
Standard, made of 1⅝" O. D. high carbon open-hearth steel (not gas pipe) tubing. Will not bend or break. Height and width given in cut. Height can be regulated if desired by setting partition deeper in cement for small cows. Lower ends regularly go 5 inches in the concrete. Lower end is crimped, making possible a solid concrete anchorage.
Fittings: When used with our complete stalls the fittings are included except when the partitions are to be set on a wood floor. In that case 5 inches will be cut off the lower ends, and Floor Flanges will be used.
Weights: Standard size, No. 2, weighs about 14 pounds; No. 39, 13 pounds.
39"

Flange for Wood Floor

Cut No. 994

Both styles are shown in Cut No. 994. The No. 2 triple bend was the original Louden design used on the first all steel stall ever exhibited at any show or exposition. However, because of certain objections common to this type, we later developed and added to the Louden line the single bend partition, No. 39.

While in ordering Louden Stalls you have your choice of the two designs, because of our past experience, we cannot refrain from recommending No. 39 for the following reasons:

1st. The triple bend makes the construction slightly weaker than the single bend.
2nd. It is harder to line up triple bends. In fact, when the view is quartering they are never in line.
3rd. There is a possibility of the cow being crowded astraddle of the triple bend and hanging there.
4th. Should the cow ever get back under the partition it would be more difficult for her to get up from under the triple bend.
5th. The general radius of the No. 39 makes it easier for the cow to turn her head and leave the stall.

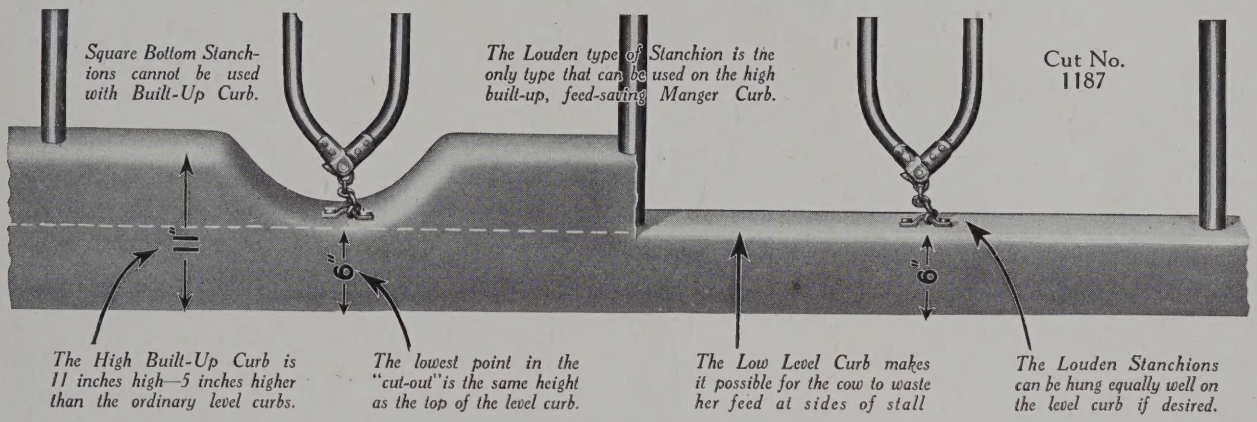
However, the choice between the two partitions is a matter for the purchaser to decide. If you prefer the triple bend to the plain single bend, we will gladly fill your needs, but unless otherwise specified the No. 39 partition will be furnished with all Louden Stalls.

Why the High Built-Up Manger Curb Is Preferable to the Low-Level Curb

The advantages of the high built-up curb are so marked that we always recommend it in preference to the low-level curb sometimes used. There is no ulterior motive in this on our part—we sell the steel equipment, not the material from which the curb is made. We encourage the high built-up curb only because we know that it is the most satisfactory and economical curb our customers can build. The small amount of additional cement required will be paid for time and time again by the feed it saves from waste. And its more attractive appearance is universally admitted.

You know from your own observation that a cow wastes feed by tossing or nosing it back over the manger curb at either side of the stanchion—not straight back under the stanchion. She can waste several dollars worth of feed out of 730 or more feedings a year. And she'll continue to do it year after year unless you stop it with a money-saving high built-up curb.

A Comparison of the Built-Up and Low-Level Curbs


Square Bottom Stanchions cannot be used with Built-Up Curb.
The Louden type of Stanchion is the only type that can be used on the high built-up, feed-saving Manger Curb.
Cut No. 1187
11"
6"
6"
The High Built-Up Curb is 11 inches high—5 inches higher than the ordinary level curbs.
The lowest point in the "cut-out" is the same height as the top of the level curb.
The Low Level Curb makes it possible for the cow to waste her feed at sides of stall
The Louden Stanchions can be hung equally well on the level curb if desired.

The cut above shows the true relationship between the low-level curb and the high built-up feed-saving curb, with cut-out for stanchion. The standard curb height under the stanchions is 6 inches with both types. But with the high built-up curb the height on either side of the stanchion—where the feed is wasted—is 5 inches greater than that of the low-level curb. Yet the built-up part of the curb does not interfere with the cow's comfort in the least. She can rest her head at her side when lying down, with every comfort and freedom of movement possible with the low-level curb. From these facts and figures it can be seen that the high built-up curb is ideal—the most satisfactory curb that can be built.

Because of our strong advocacy of the high built-up curb and the fact that *only single-chain-hung stanchions with V-shaped ends can successfully be used* with this superior form of curb, it is widely known as the Louden High Built-Up Curb. Double-chain-hung or square-bottomed stanchions must be hung above a low-level curb. Although the Louden stanchion hangs *equally well* in either the low-level or high built-up curb, the advantages of the built-up curb are so manifest and the perfect satisfaction it affords the user is so great that we always recommend it.

We save nothing in equipment material by the use of the high built-up curb. The stall posts are the same length in either type of curb, extending through the curb and 4 inches on down into the stall floor. Our recommendation of the high-built-up curb is based only on our desire to see our customers put in the most economical and satisfactory curb that can be built.

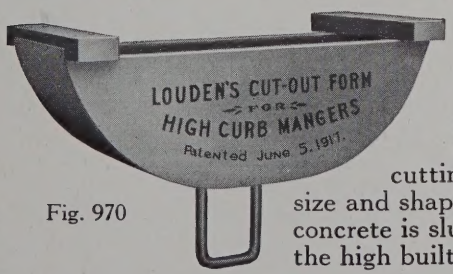
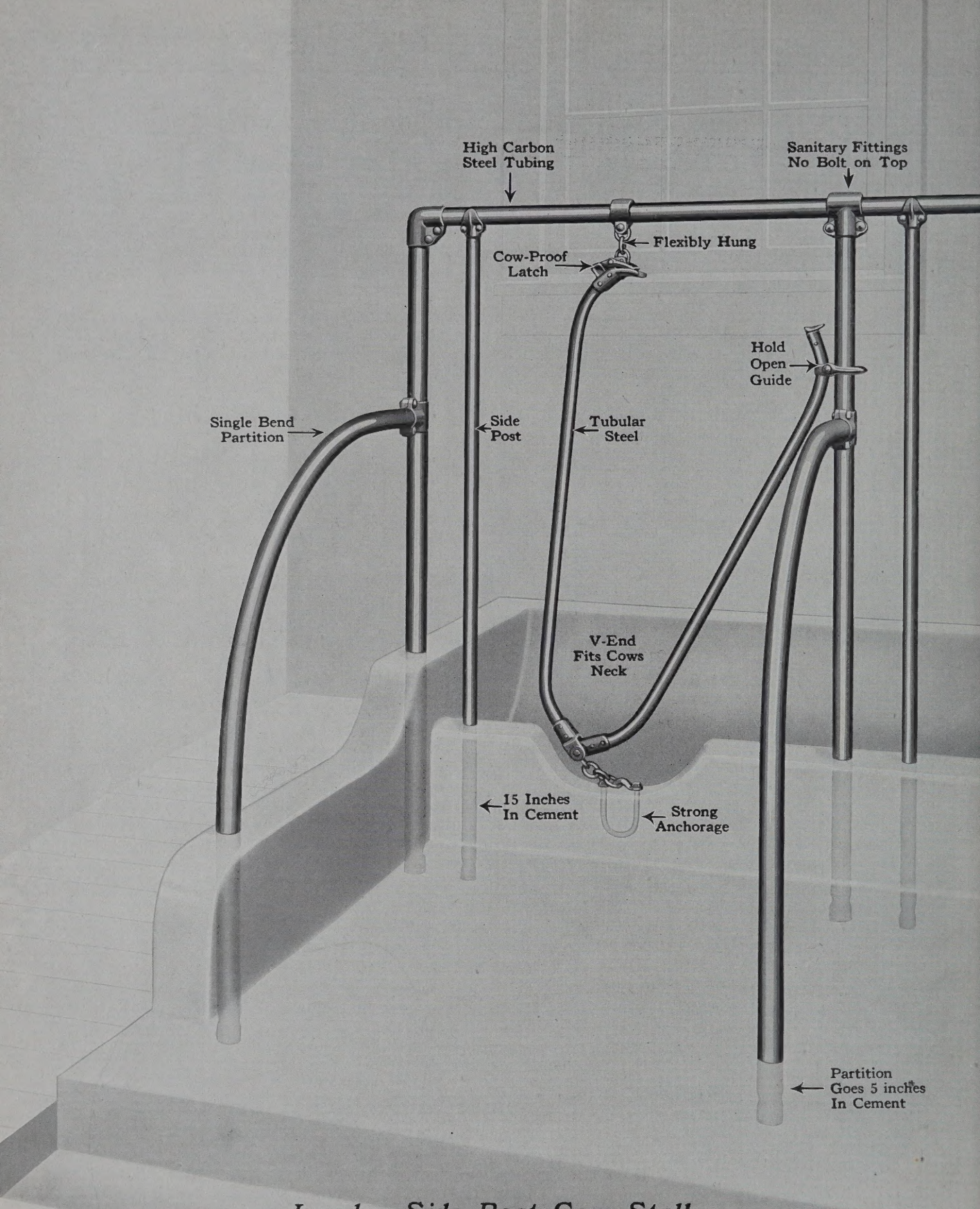


Fig. 970

No Wasteful Cutting of Form Boards

The Louden Cut-Out Form (Fig. 970) is simply set in between the curb form boards where the stanchion depressions should come in the high built-up curb, thereby doing away with all wasteful cutting of form board lumber and insuring stanchion cut-outs of uniform size and shape. It also holds the U-bolt stanchion fastener exactly in place while concrete is slushed in around it. You will find it just as easy and simple to build the high built-up curb as it would be to build the low-level curb.



Louden Side-Post Cow Stall
Fig. 959

Louden Side-Post Cow Stall — Fig. 959

Specifications of Standard Size

Size of Tubing: The stall partitions, top rail and main stall posts are all made of the best quality of 1⅝" O. D. Open-Hearth High Carbon Steel Tubing (not soft pipe)—smooth and exceedingly strong. The side posts are made of the same high quality steel tubing 1⅝" outside diameter.

Couplings: All couplings are made out of the highest quality of Certified Malleable Iron.

Width: The standard width of the stall is 3 feet 6 inches (42 in.) but this may be varied to fit requirements and the top rail will be cut to suit.

Height: The total height above the stall floor is 5 feet 3 inches (63 in.). The standard height of the manger curb at the sides is 11 inches and at bottom of the cut-out where stanchion is anchored is 6 inches. Distance from stanchion fastener to under side of top rail, 4 feet 7 inches (55 in.).

Length of Posts: Main stall posts and side posts are 5 feet 5 inches (65 in.) long and with the High Built-Up Curb they go 15 inches into solid cement. Lower ends of main posts and partitions are indented to insure a firm grip.

Stall Partitions: The cut shows our No. 39 Single Bend Partition, described on page 100, which we recommend and furnish unless otherwise specified. However, our No. 2 Partition, (page 100) will be substituted if preferred.

Stanchions: The cut shows our Tubular Steel Stanchion, Fig. 861, described on page 114, which we recommend and furnish with stalls unless otherwise specified. If preferred, we will furnish our Wood-Lined Stanchion, Fig. 937, at same price, or our Five-In-One Stanchion at a slightly higher price.

Finish: All parts except the Lower Stanchion Fasteners, which are sherardized, are finished with Special Silver Gray Enamel baked on, or will be galvanized if so ordered.

Illustration: The cut shows the stall at the end of the row and also illustrates the End Section on the cross alley where the end curbs are located. When there is an alley at each end of a row of stalls, an extra end section is required for which an extra charge will be made.

Fig. 959 Stall Complete, consists of 1 Main Post; 1 Side Post; 1 Stall Partition; 42 inches of Top Rail (more or less); 2 Interlocking Dust-Proof Couplings; 1 Grip Clamp; 1 Tubular or Wood-Lined Stanchion; 1 Regular Stanchion Holder (Adjustable holder furnished only when specified); 1 "Hold-Open" for Stanchion and 1 Regular Stanchion Fastener.

End Section Complete: consists of 1 Main Post; 1 Stall Partition; 1 Interlocking Dust-Proof Coupling and 1 Single Piece Elbow.

Weights: Fig. 959 Stall complete with Tubular Steel Stanchion and 42 inches of top rail, 63 pounds. (Where extra attachments such as Upper and Lower Stanchion Adjusters, etc., are included the stall weighs around 78 pounds.) End Section complete (no top rail) weighs 29 pounds.

Important: We use the very highest grade of high carbon steel Tubing made, and not soft gas or merchant pipe which is inferior material for cow stalls.

Note: When one end of a row of stalls is joined to a wall, the end section at the other end will be counted as a part of the stalls and no extra charge will be made.

The same high quality of material is used in all Louden Stalls. Prices vary according to the different features of construction embodied — and not because of any difference in the quality of materials used.

The Louden Side-Post Stall, shown on opposite page, with High Built-Up Curb, Standardized Manger and Interlocking dust-proof couplings, has proved to be very popular with our customers. The strength, simplicity, effectiveness and cleanliness of its design is clearly shown by the illustration.

The Side-Post is a distinctive Louden feature. It is not simply an attachment similar to those sometimes fastened on to single post stalls. It is instead an additional post built into the steel frame and deeply imbedded in solid concrete—that lends its full share of rigid support to the entire stall. It assures strength.

This Side-Post also serves to direct the cow's head straight into the wide open stanchion when she enters the stall. It does away with all the excitement and loss of temper that sometimes results from a cow putting her head in the wrong opening. The Louden Side-Post Stall enables one man to quickly, easily and quietly stanchion the cows without worrying them in the least. It means contented cows and more milk.

Certain types of stanchions require the entire side of the stall for the cow to turn her head in. With such types a swinging attachment that can be pushed in and out of this space is necessary. However, the flexibly hung "pasture comfort" Louden Stanchion enables the cow to turn her head around to either side, in the Side-Post Stall with perfect freedom and comfort. Even though she has long horns there will be no interference.

The simple effectiveness of this Side-Post Stall is characteristic of the perfection of Louden design. Louden Stalls are never cluttered up with attachments of doubtful value that act as dust collectors, trouble makers and furnish talking points that camouflage faults of design.

If desired, our stanchion Side Chain shown in Fig. 1149 can be furnished instead of the "Hold-Open" or Guide generally used to hold the open stanchion arm to the adjacent stall post. When so equipped the cows can be very easily and quickly released by simply unlatching the stanchion and letting the hinged arm swing out. The chain is fitted with a clamp at each end (see N-24, plate 15, page 166). Its length of 11 inches allows the cow all necessary freedom of movement when the stanchion is closed.

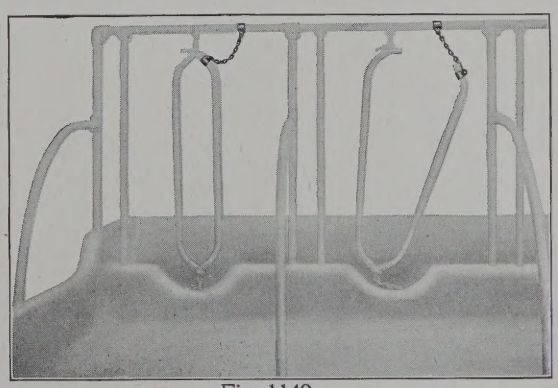
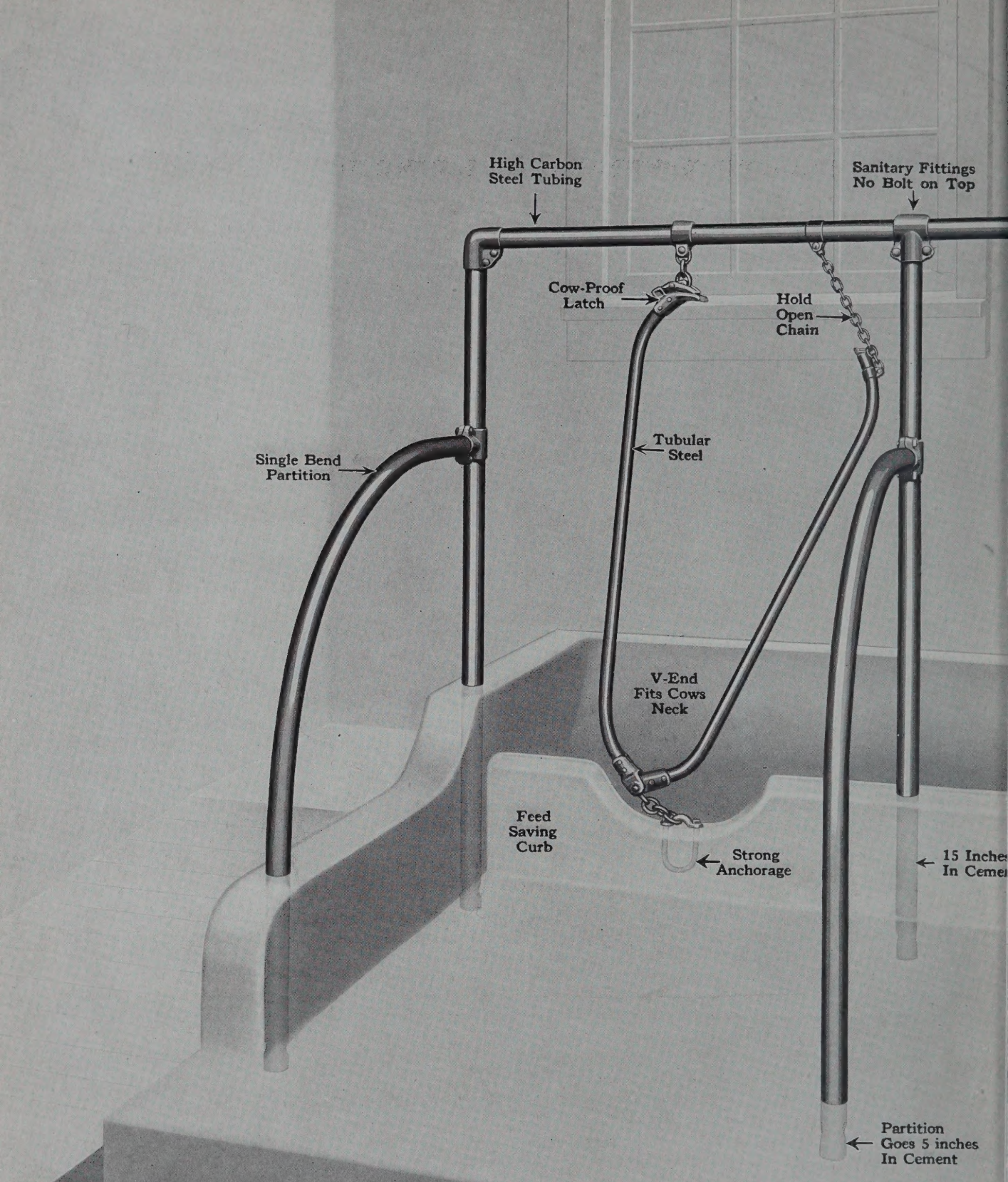


Fig. 1149



Louden Single-Post Cow Stall
Fig. 796

Louden Single-Post Cow Stall — Fig. 796

Specifications

Size of Tubing: The stall posts, stall partitions and top rail are all made out of the best quality of 1⅝" outside diameter high carbon open-hearth steel tubing (not soft pipe)—smooth and exceedingly strong.

Couplings: Of highest quality Certified Malleable Iron.

Width: The standard width of the single post stall is 3 feet (36 in.) but this may be varied to fit requirements and the top rail will be cut to suit.

Height: The total height above the stall floor is 5 feet 3 inches (63 in.). The standard height of the manger curb at the sides is 11 inches and at the bottom of the cut-out where the stanchion is anchored is 6 inches (at its lowest point it is still as high as the ordinary low level curb sometimes used). Distance from stanchion fastener in curb to the underside of top rail, 4 feet 7 inches (55 in.).

Length of Posts: The stall posts are 5 feet 5 inches (65 in.) long and with the standard High Built-Up Curb they go 15 inches into the solid cement. The lower ends of posts and partitions are indented to insure a firm hold.

Stall Partitions: The cut shows our No. 39 Single Bend Partition described on page 100 which we recommend and furnish unless otherwise specified. However, our No. 2 Partition described on page 100 will be substituted if preferred.

Stanchions: The cut shows our Tubular Steel Stanchion, Fig. 861, (See page 114,) which we recommend and furnish with stalls unless otherwise specified. If preferred, we will furnish our Wood-Lined Stanchion, Fig. 937, at same price, or our Five-In-One Stanchion at a slightly higher price.

Finish: All parts except Lower Stanchion Fasteners, which are sherardized, are finished with our special Silver Gray Enamel, baked on, or will be galvanized if so ordered.

Illustration: The cut shows one Stall and one End Section on the cross alley where the end curbs are located. When there is an alley at each end of a row of stalls an extra end section is required for which an extra charge will be made.

Fig. 796 Stall Complete includes: 1 Stall Post; 1 Stall Partition; 36 inches of Top Rail (more or less); 2 Interlocking Dust Proof Couplings; 1 Tubular Steel or Wood-Lined Stanchion; 1 Regular Stanchion Holder (Adjustable Holder furnished only when specified); 1 Chain Hold Open for stanchion and 1 Lower Stanchion Fastener.

End Section, Complete: for 796 Stall includes, 1 Stall Post; 1 Stall Partition; 1 Interlocking Dust Proof Coupling and 1 Single Piece Elbow.

Weights: Our Standard Size 796 Stall with Tubular Steel Stanchion and 36 inches of Top Rail weighs about 52 pounds. Where extra attachments such as Upper and Lower Stanchion Adjusters, etc., are included, Stall weighs around 67 pounds. The Standard End Section complete weighs 27 pounds.

Important: We use the very highest grade of high carbon steel tubing made, and not soft gas or merchant pipe which is inferior material for cow stalls.

Note: Stalls wider than 36 inches requiring longer top rails weigh a little more. When one end of a row of stalls is joined to a wall the end section at the other end will be counted as a part of the stalls and no extra charge will be made.

The same high quality of material is used in all Louden Stalls. Prices vary according to the different features of construction embodied—and not because of any difference in the quality of materials used.

The Louden Single Post Stall, Fig. 796 is an excellent stall for use with young stock or small cows which require a stall around three feet in width. It is widely used by many dairymen for stabling young stock, especially heifers, until they are old enough to join the producing herd. When fitted with the young stock size of the Louden Tubular Stanchion it is ideal for this purpose.

We do not encourage the use of the Single Post type for cows that require a stall much wider than three feet. With the three foot width the space between the stall post and the stanchion is not so great nor is there the liability of the stanchion opening so wide that the cow will try to force her way through it.

However the slight variation in width has no effect whatever on the strength or durability of the Louden Single Post Stall. As a matter of fact the Louden method of deeply imbedding the High Carbon Open-Hearth Steel stall posts and stall partitions in solid concrete, instead of merely sawing them off at the top of the curb and anchoring them with light strap iron, or attaching them in some other weak manner, makes the Louden Fig. 796 Stall a much stronger construction than any other Single Post Stall on the market.

Like all other Louden Stalls, this inexpensive Single Post Stall is remarkably sanitary, and its neat, clean-cut appearance adds greatly to the attractiveness of the barn. All Stall posts, top rails and Stall partitions are built of the same size and quality of High Carbon Open-Hearth Steel used in our famous Fig. 812 stall shown on page 94. The same Louden Tubular Stanchion can also be used in the Single Post Stall, or our special young stock size of this stanchion can be furnished if desired. The Single Post Stall also has our Interlocking Dust-Proof Couplings, one of the outstanding features of all Louden Stalls.

Bending Steel Tubing

Open-Hearth High Carbon Tubular Steel is too stiff and strong to bend readily. The bending apparatus must be the very best and the curves must be not too sharp. The only tubing we bend in the manufacture of our Cow Stalls are the stall partitions, the sides for our Tubular Stanchions and the guards for our Go-Right Stalls. We believe that a piece of tubing is *stronger straight than bent* and only bend it when absolutely necessary, and certainly never to prove the quality of the tubing. The *quality* of the tubing *cannot be proved* in this way because a soft iron tube or *a piece of lead pipe will bend more easily than high carbon tubular steel,* but this does not prove that soft iron tubing or a piece of lead pipe is as good material for cow stalls as high carbon tubular steel. On the contrary it is a proven fact that open-hearth high carbon tubing makes the best possible material for animal stalls.

Louden Go-Right Cow Stall — Fig. 999

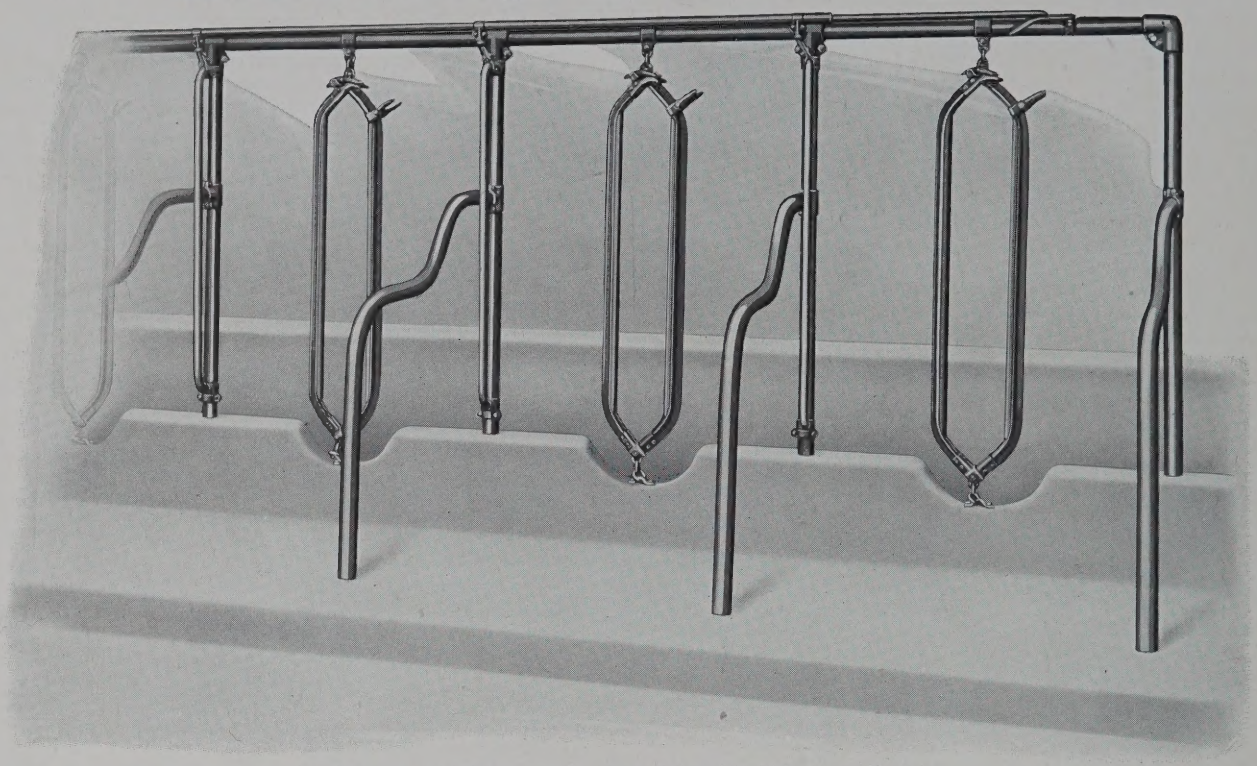
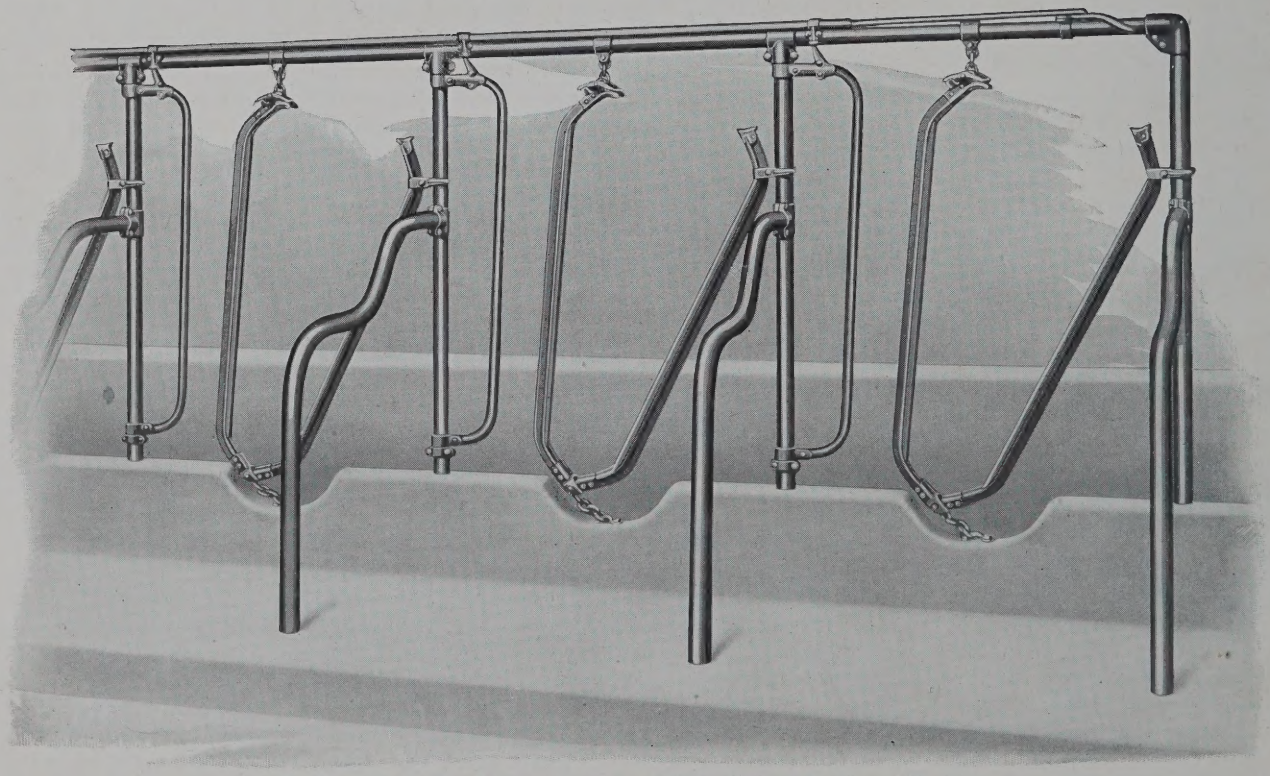


Fig. 999. Go-Right Swung Back to Side of Stall in Open Position.



Cut No. 1000. Go-Right Lined Up With Stall Posts in Closed Position.

Louden Go-Right Cow Stall — Fig. 999

Specifications

Size of Tubing: The stall posts, stall partitions and top-rail are all made out of the best quality of 1⅝" O. D. high carbon (Open Hearth not Bessemer) steel tubing.

Couplings: Made of highest quality Certified Malleable Iron.

Width: Standard width is 3 feet 6 inches (42 inches) but this may be varied to fit requirements and top rail will be cut to suit.

Note: The height of the stall, length of the posts and the specifications of the partitions are the same as the Single Post Stall, Fig. 796. See specifications on page 105.

Go-Right Attachment: The guards are made of 1 1/16" O. D. high carbon steel tubing, having their upper and lower ends bent as shown, and hinged to stall posts by certified malleable iron clamps. These hold the guards securely, while they loosely encircle and rotate on the posts. Lower ends of guards are held up from curb by collars on the posts.

Shift Rod: The shift rod which is connected to the upper ends of guards to open and close them, is of 1 1/16" O. D. high carbon steel tubing and is cut to suit the length of the section of stalls to which the Go-Right is applied. The throw lever and the clamp by which it is pivoted to the top-rail are both certified malleable iron. The Pitman connecting the shift rod and the lever together is half-inch wrought iron.

Stanchion: The cut shows our Wood-Lined Stanchion, Fig. 937, described on page 116, which we furnish unless otherwise specified. If preferred we will furnish our Tubular Steel Stanchion, Fig. 861 at the same price.

Finish: All parts except the Lower Stanchion Fasteners which are sherardized, are finished with our Special Silver Gray Enamel baked on, or will be galvanized if so ordered.

Illustration: The cuts show three Stalls and a part of another and one End Section. When there is an alley at each end of a row of stalls, an extra end section is required for which an extra charge will be made.

Go-Right Stall: Consists of 1 Stall Post; 1 Stall Partition; 42 Inches of Top Rail (more or less); 2 Interlocking Dust-Proof Couplings; 1 Wood-Lined or Tubular Steel Stanchion; 1 Regular Stanchion Holder (Adjustable Holder furnished only when specified); 1 Guide or Hold-Open for Stanchion; 1 Lower Stanchion Fastener; 1 Go-Right Guard fitted with hinge castings for stall posts; 1 Collar to support lower end of guard. In addition to above we furnish 1 Shift Lever; 1 Pivot Clamp for shift lever; 1 Tubular Shift Rod for each section of 2, 3 or more stalls, cut the proper length to connect to the upper ends of the hinge castings and to operate the guards, and 1 Pitman to connect the shift lever and shift rod together.

End Section Includes: 1 Stall Post; 1 Stall Partition; 1 Interlocking Dust-Proof Coupling and 1 Single Piece Elbow.

Weights: Stall complete, 63 lbs. (Where extra attachments such as upper and lower stanchion adjusters, etc., are included the stall weighs around 78 lbs.) End Section, 27 lbs.

Note: When one end of a row of stalls is joined to a wall the end section at the other end will be counted as a part of the stalls and no extra charge will be made.

The Go-Right Stall is in reality our Single Post Stall, illustrated on page 104, with an attachment added to close up the space between the stall post and the stationary side of the open stanchion and thus prevent the cow from putting her head in the wrong place when entering the stall. After the cow is stanchioned this attachment may be swung around to the side if desired.

The Go-Right attachment is not needed on the Louden Double Post or Side Post Stalls, either as a guard or as a means of providing for the cow's comfort. The *only* open place for the cow's head when she enters either of these stalls is the open stanchion, and the famous Louden stanchion *flexibly hung*, which permits a side swing, allows the cow full freedom to throw her head around, card herself on either side or lie down naturally. It gives her real pasture comfort in the barn.

It is only on the Single Post Stall (similar to the one shown on page 104) that the Go-Right is ever used and then only when built 39 inches wide or wider to accommodate medium or large size cows.

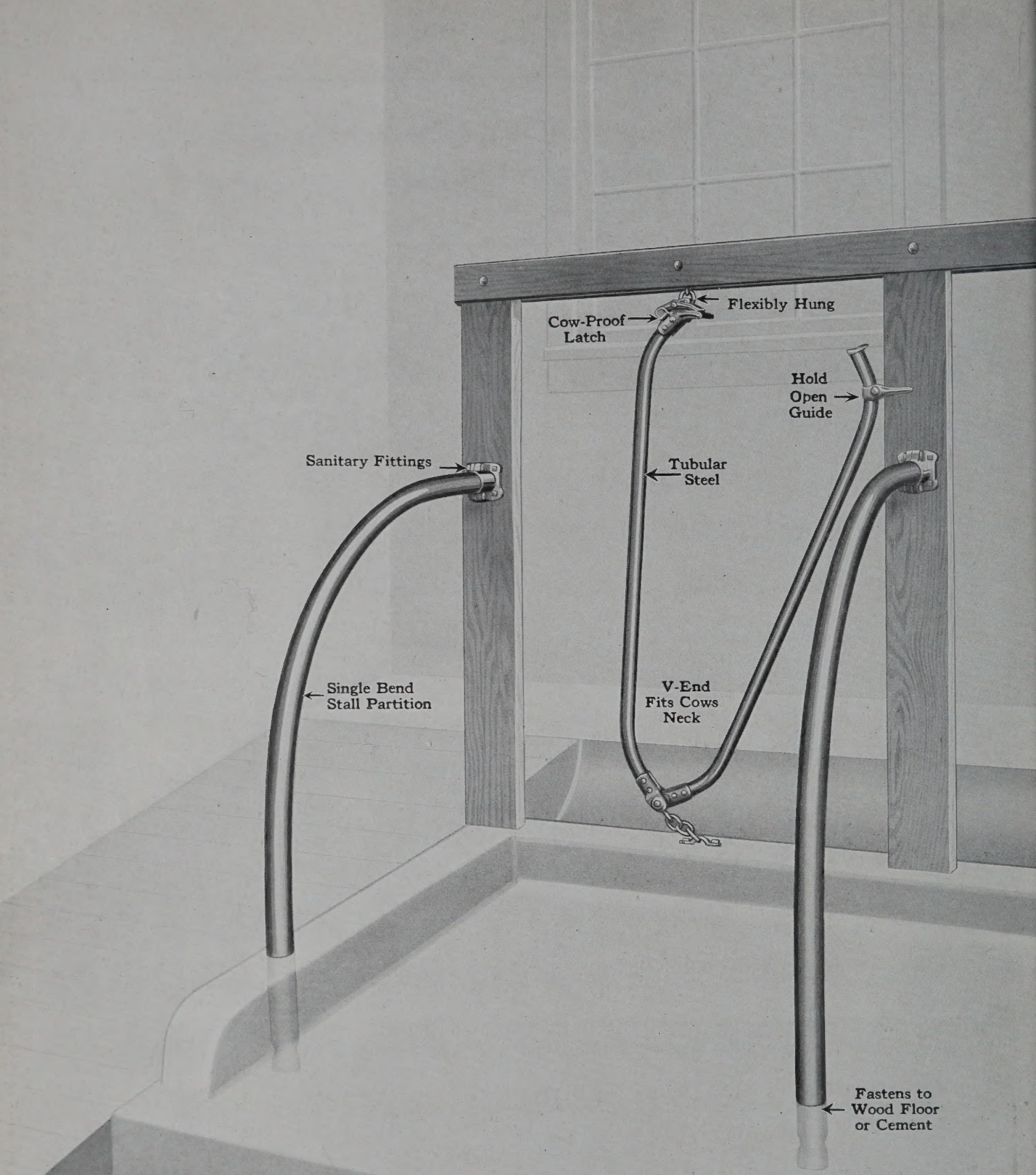
For those of our customers who desire this type of stall, the Louden Go-Right possesses a number of noteworthy features that make it outstanding—that give it a marked superiority in this field.

As will be seen from the cuts, which show the Go-Right Stall in both open and closed position, it is extremely simple in operation and easy to keep clean. There are no sharp corners whatever to injure the cow. Neither are there *any* cracks, crevices or pockets to catch dirt and hold sour feed, affording breeding places for dangerous disease germs such as one might expect to find where attachments of any kind are used.

The Louden Go-Right is designed so that the lower end of the swinging guard (which blocks the cow from putting her head in the wrong place) is hinged *direct* to the stall post a sufficient distance *above the manger curb* to avoid interference of any kind. This is a distinct Louden feature of importance. Were the guards fastened close down on the concrete curb there would be the liability of them catching and binding on hay, ensilage, bedding, etc., or striking the cow's knees when swung back or forming a place where she might catch and injure her feet. Guards so located would provide a regular "catch-all" for dirt.

The operating mechanism of the Go-Right is easy to handle and extremely effective. By throwing the shift lever in one direction the Go-Right Guards are swung into line with the stall posts, thus closing up the space between the stall posts and the stanchions. By moving the lever in the opposite direction the Guards are swung out in line with the stall partitions as shown in Fig. 999. At the same time and without additional mechanism, the Guards are automatically locked in either position.

While the cuts show our Wood-Lined Stanchions, Double Bend Partitions and High Built-Up Curb, the Tubular Stanchions and Single Bend Partitions may be substituted and the low-level curb used if desired.



Louden Simplicity Cow Stall
Fig. 951

Louden Simplicity Cow Stall — Fig. 951

Specifications

Metal Parts: We furnish only the Metal Parts as follows: Stall Partitions; Flanges to connect upper ends of partitions to wooden stall uprights; Stanchions; Bolts to connect upper ends of Stanchions to top-rail; Guides (or hold-opens) for Stanchions, and Stanchion Fasteners. When wood floors are used or cement floors are already in, Floor Flanges will be needed, also Anchor Bolts. We do not furnish the bolts to join the wooden stall frame together as they can be procured at any hardware store. If desired, directions will be furnished for making this type of stall.

Couplings: The Flanges and other Fittings used are made out of the highest quality of Certified Malleable Iron —strong, tough and durable.

Stall Partitions: The cut shows our No. 39 Single Bend Partition described on page 100 which we recommend and which we furnish unless otherwise specified. It stands 3 feet 6 inches (42 in.) above the stall floor at the inner end and extends back 3 feet 3 inches from center of curb at the bottom. However, our No. 2 Partition described on page 100 will be substituted if preferred.

Stanchions: The cut shows our Tubular Steel Stanchion, Fig. 861, described on page 114, which we recommend and furnish unless otherwise specified. If preferred we will furnish our Wood-Lined Stanchion, Fig. 937 at the same price, or our Five-In-One Stanchion at a slightly higher price.

Finish: All Metal Parts except the Lower Stanchion Fasteners, for cement, which are sherardized, are finished with our Special Silver Gray Enamel, baked on, or will be galvanized if so ordered.

Illustration: The cut shows one Stall at the end of a row. When there is an alley at each end of the row, 1 extra Partition and 1 extra Wall Flange will be required for the extra End Section.

Simplicity Stall Fittings Complete, for each stall, consist of 1 Stall Partition; 1 Flange for attaching to Wood; 1 Tubular Steel or Wood-Lined Stanchion; 1 Bolt to connect stanchion to top-rail; 1 Guide or Hold-Open for stanchion and 1 Lower Stanchion Fastener.

Weights: Fittings for stall weigh about 34 pounds; Fittings for the extra End Section about 17 pounds.

Special: When the stall is to be set on a wood floor or on a cement floor already in, the lower ends of the partitions will be cut 5 inches shorter and a Floor Flange will be required together with lag screws for attaching to the wood floor, or in the case of the cement floor, anchor bolts will be required instead.

The wooden stall frame can be built by using 2″x6″ pieces for uprights and two 2″x4″ timbers for the top rail. Blue-Prints will be furnished on request.

We do not recommend the use of any wooden parts whatever for cow stalls, especially since Government Inspectors in dealing with the foot-and-mouth disease and other contagion in the past have in some instances ordered the tearing out of all wood fixtures in dairy barns.

Regardless of how painstaking or careful one may be it is absolutely impossible to keep wooden stalls or wooden stanchions in the same clean, fresh, sanitary condition that steel stalls can be kept in. Wood is porous, hence there is a tendency for it to absorb foul moisture. As the wooden stall parts gradually become thoroughly saturated there is a bad odor or stench which makes the interior of the barn unpleasant. Even though the wooden parts used are of the best grade of lumber, they are almost certain to contain at least some small cracks and crevices which offer refuge to countless germs.

Even from the standpoint of economy alone, wooden stalls in the long run, are just as expensive, if not more so, than all steel stalls. For the wooden uprights rot out at the base and require replacing every few years—a situation that is entirely eliminated by steel.

Wooden Stalls shut out sunlight—they interfere to a certain extent with the circulation of the air—they are not so attractive as the simple, clean-cut metal stall.

Nevertheless, there may be some parties who have timber of their own that they can use to a good advantage and in view of this feel that they can save some money by doing so. To such parties the Louden Simplicity Stall shown on opposite page will appeal. The famous Louden Flexibly Hung Stanchion will afford the cows freedom of natural movement—perfect comfort—even though the frame of the stall be wood. And the Louden Steel Stall Partition will separate the cows—keep them from crowding each other—protect the cow lying down from being stepped on by a neighboring cow.

These Metal Fixtures are strongly built. They are neat in appearance—Sanitary and extremely durable

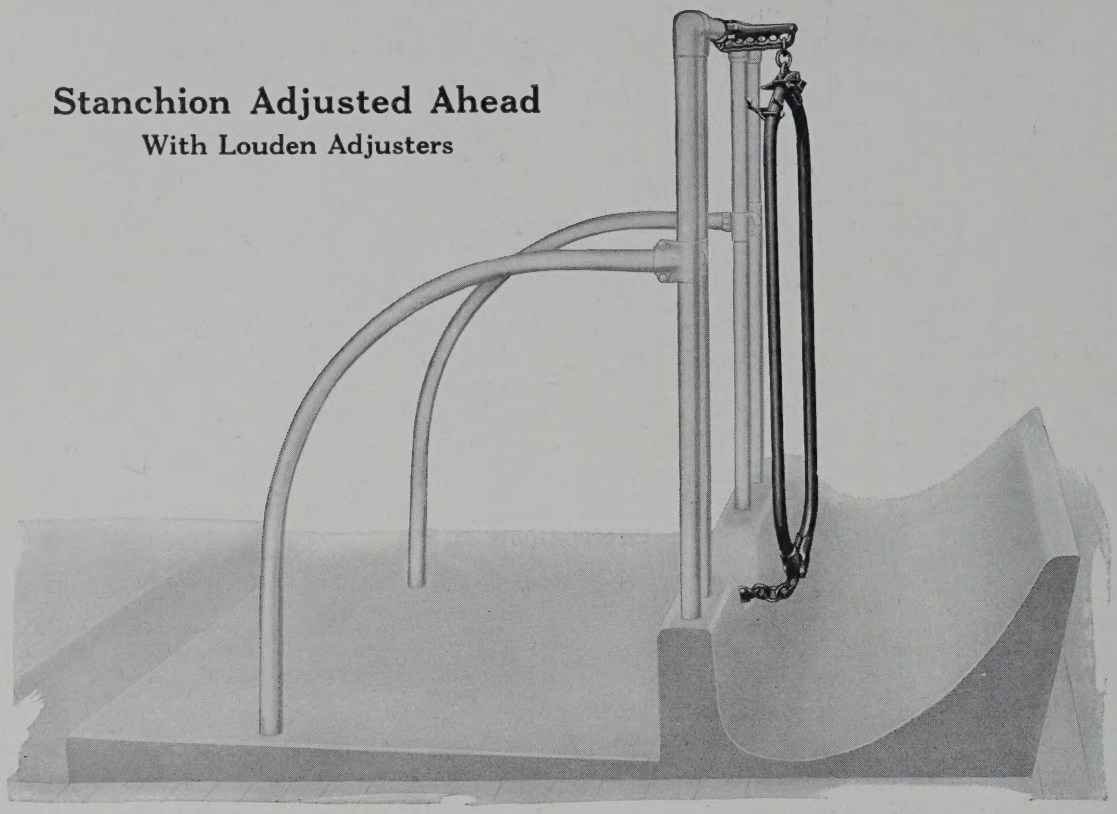
How To Securely Clamp Metal Parts Together

1. Put all the clamps on *loosely* so the parts can be *easily racked* to line them up properly.
2. After they are all in proper position draw the nuts up tight with a wrench.
3. When tightly drawn, *hit the heads of the bolts heavily with a hammer to set them.*
4. Tighten up the nuts *again* with a wrench *as much* as can be safely done.

When treated this way the bolts will not be liable to get loose but without hammering their heads so as to *solidly set them* they will be liable to work loose under a strain and especially so under a jar. This is important in attaching clamps of any kind, especially splice clamps for overhead track, couplings and clamps for connecting the tubing of animal stalls and pens together, especially pens to hold vicious bulls and for other purposes requiring solidity and durability of structure.

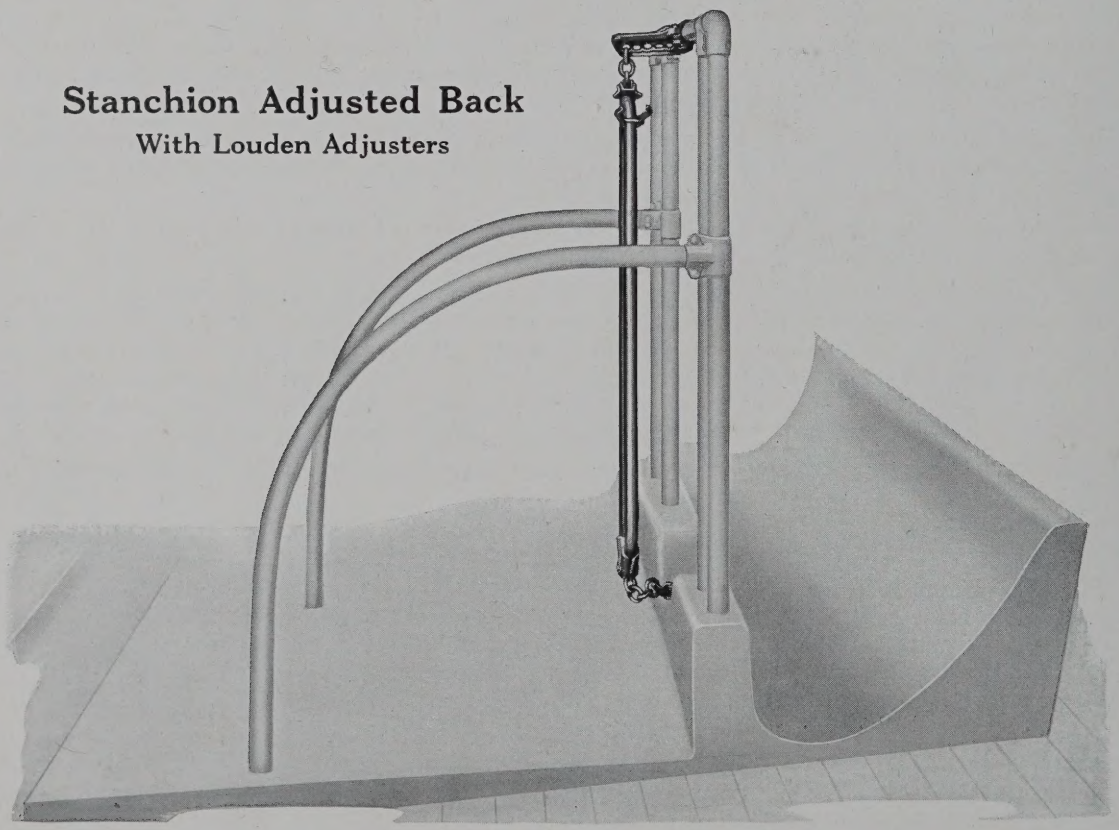
Stanchion Adjusted Ahead

With Louden Adjusters



Stanchion Adjusted Back

With Louden Adjusters



The Problem of Aligning the Cows

The proper alignment of the cows on the gutter is quite often made to appear more important in the equipping of a dairy barn than it actually is. For the most part, producing cows of any given breed are fairly uniform in length, hence no special provisions whatever are necessary.

However, if by chance you should have a cow or two that is a little longer or a little shorter, than the average and care to provide for their alignment the one absolutely sure way of doing so, is by *making the distance between the manger and the gutter the proper length to fit the cow.* There are several different methods for accomplishing this purpose, but the one most commonly used is that of building the standing platform longer at one end of the stall row and shorter at the other end. With such the gutter runs slightly diagonal and the standing platform is tapered so that different lengths will be provided for different size cows. Thus, with a platform that fits her, the cow stands in *one natural position* and whether she is idle in the stall or is eating out of the manger she at *all times* will be aligned properly so the manure will drop in the gutter. Aside from being extremely effective this method is simple—costs no more than the ordinary floor and does not in any manner mar the attractive appearance of the interior.

Simply adjusting the stanchion backward or forward does not *always* adjust the cow back or ahead, for the reason that the cow will always have her nose on the feed in the manger while eating. Since her neck is from 15 to 20 inches long, regardless of where the stanchion is aligned, she will merely pull her head back or extend it forward until the feed is reached. Therefore, unless the platform is the correct length, her hind feet may be down in the gutter or ahead on the stall floor. And any stanchion that does not offer enough freedom to permit this neck movement is not a comfortable cow tie.

Further—when adjusted ahead there is always a tendency for the stanchion to pull the cow forward to such an extent that she is apt to jam and injure her knees against the cement curb in getting up. When adjusted to the rear, if the type of lower adjusting irons used, projects back from the curb as far as the stanchion, the cow is likewise liable to bruise her brisket on them.

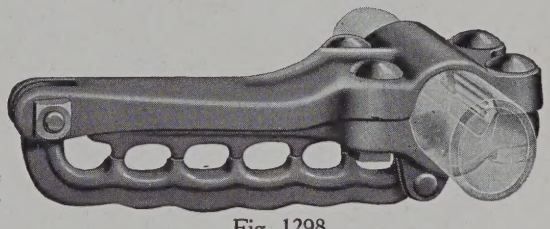


Fig. 1298
Upper Stanchion Adjuster. Weight complete with bolts, 4 pounds. Be sure to specify size of top rail.

The Louden "Stanchion Alignment"

Notwithstanding the fact that proper stall floors produce ideal alignment, where dairymen desire to employ the method of adjusting the stanchion as a means for aligning the cows on the gutter, no better Stanchion Adjusters can be obtained than the Louden, shown on this and opposite page. We have manufactured them for years—they embody many exclusive features of construction that make them the simplest, most practical and most effective device for moving the stanchion ahead or back, ever offered the dairy public. One that eliminates many of the objectionable points of the ordinary adjuster and gives the cow the greatest comfort and protection possible to obtain for the method involved. These features are fully covered by our patent No. 1,097,809, May 26th, 1914.

The top adjuster illustrated in Fig. 1298 offers *twelve* distinct adjustments—six ahead and six back. Each adjustment is slightly over an inch or a total of 13 inches in all. Hence it has a greater number of separate adjustments and a greater total range than can be found in any device of the kind on the market.

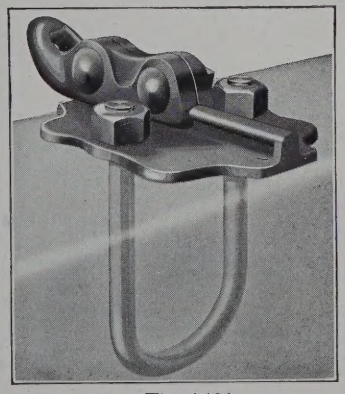


Fig. 1431
Lower Stanchion Adjuster. Weight complete 2¼ pounds.

Nor is it necessary with the Louden to take the entire casting off—or unloosen several bolts in making an adjustment. Simply unloosen the *one bolt* at the outer end—insert the stanchion chain in the desired notch—tighten the bolt up again and the job is completed.

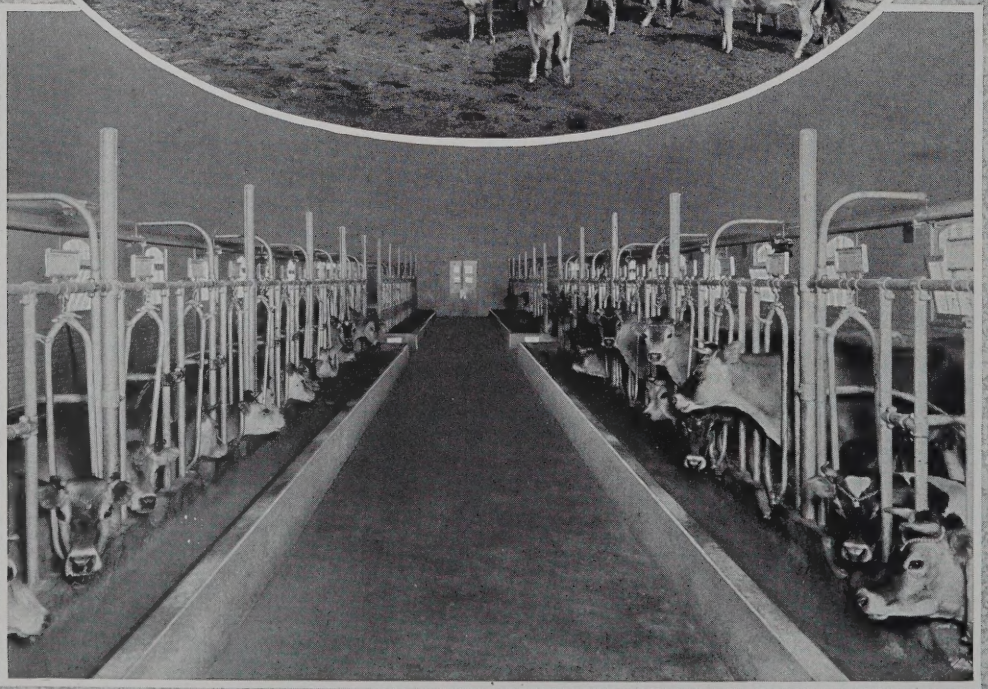
Fig. 1431 shows the bottom adjuster, the U-bolt of which is solidly imbedded in the concrete curb. By unloosening bolts on chain holder clamp, the latter may be adjusted forward or backward. But because of the flexible chain which permits the bottom end of the Louden Stanchion to swing, in no case does the adjuster ever project back from the curb as far as the stanchion in order to obtain full adjustment. This is an assurance against the cow bruising her brisket on it, in getting up or lying down.

If you want to adjust your stanchion ahead or back in the stall, the Louden will do the job perfectly. Whether or not adjusting the stanchion aligns the cow is a matter for the customer to decide.

Whether standing up or lying down there is real "Pasture Comfort" in Louden Stalls and Stanchions

Ayerdale Stock Farm,
Bangor, Maine

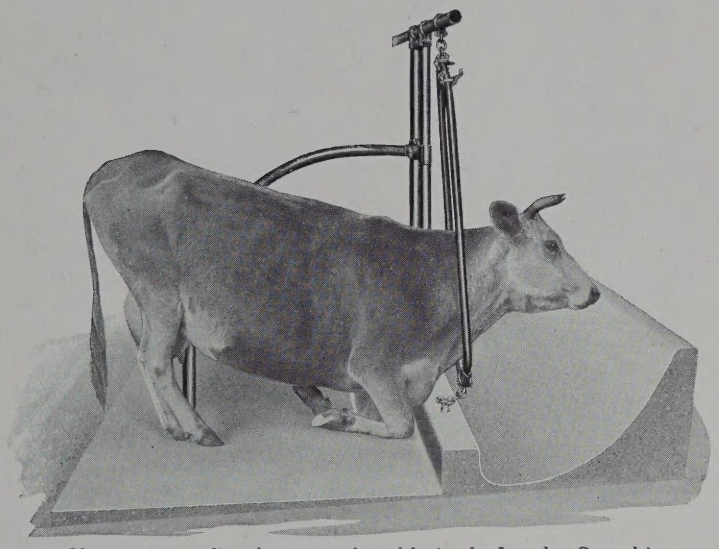
Cows are a lot like humans in the way they respond to kind treatment and comfortable surroundings. Give them the same comfort in the barn that they get in the pasture and watch the milk yield increase



The perfect ease and contentment with Louden Stalls and Stanchions mean more milk in the pail

Col. Colt's herd,
Bristol,
Rhode Island

The Louden Stanchion Gives the Cow Pasture Comfort in the Barn



She gets up or lies down comfortably in the Louden Stanchion.

Every Dairyman realizes that if he is to get the greatest milk yield from his cows they must be comfortable at all times—as much so in the barn as in the pasture. Hence, there is nothing of greater importance in Dairy Barn Equipment than the Stanchion by which the cow is held.

The first purpose of any Stanchion is to hold the cow securely in her right place. But the Louden Stanchion does a great deal more—for it holds her in such a comfortable manner that she hardly realizes she is being held. While no cow stanchioned can roam around as in the pasture, the cow that stands in the Louden Stanchion does have full freedom of movement for every other comfort that she enjoys out in the field.

The reason may be summed up in a few words—the Louden Stanchion is a swinging stanchion—*flexibly* hung with a single heavy chain above and *flexibly* anchored with a single heavy chain below. Thus when the cow pitches forward in lying down or getting up, the Louden Stanchion goes freely with her body—just enough to permit this *natural movement.* As in the pasture there is no undue restraint—no jamming or bruising her shoulders.

Now compare this freedom of movement with that possible in the old type of wooden stanchion or for that matter any type of stanchion that does not allow sufficient forward or backward movement and you have the comparison between comfort and discomfort. For when the cow pitches forward in such, the Stanchion does not go with her—it is practically stationary—the result is she jams her shoulders—she reaches the desired position only after a hard struggle and much distress.

If the cow wants to throw her head around—card herself or lick her side, the Louden Stanchion turns with her neck—swings a little to either side if necessary for it follows her natural movement and again there's no undue restraint whatever. Yet with all the freedom and comfort the Louden Stanchion affords the cow, it *does not* permit her to reach over into her neighbor's manger.

There are no square corners on the Louden Steel Stanchion to rub against the cow's neck. The lower end being V-shaped, it fits her when lying down. But the sloping bottom end is also necessary for the cow's protection. It prevents the cow from getting her front foot caught between the manger curb and the stanchion and having it seriously injured such as sometimes occurs where flat or square end stanchions are used. In fact, a number of cases have been reported in which valuable cows have been ruined in this way.

Today, as in 1906, when the Louden Stanchion was invented, it gives the cow perfect comfort when lying down, the cow's head being in a natural position about 10½ inches above the floor. The height of the manger curb underneath is *6 inches.* This same height may be carried throughout the barn if desired, but since the cow works her feed back at the side of the stall—the design of the Louden Stanchion *permits building* the curb up to *11 inches* at these points—still maintaining perfect cow comfort and at the same time eliminating feed waste. This is an exclusive Louden feature—see page 101.

The Louden Steel Stanchion is extremely convenient. The latch can be opened with one hand, closed or mittened, yet it is so designed that the craftiest old cow can't budge it—it is absolutely cow-proof.

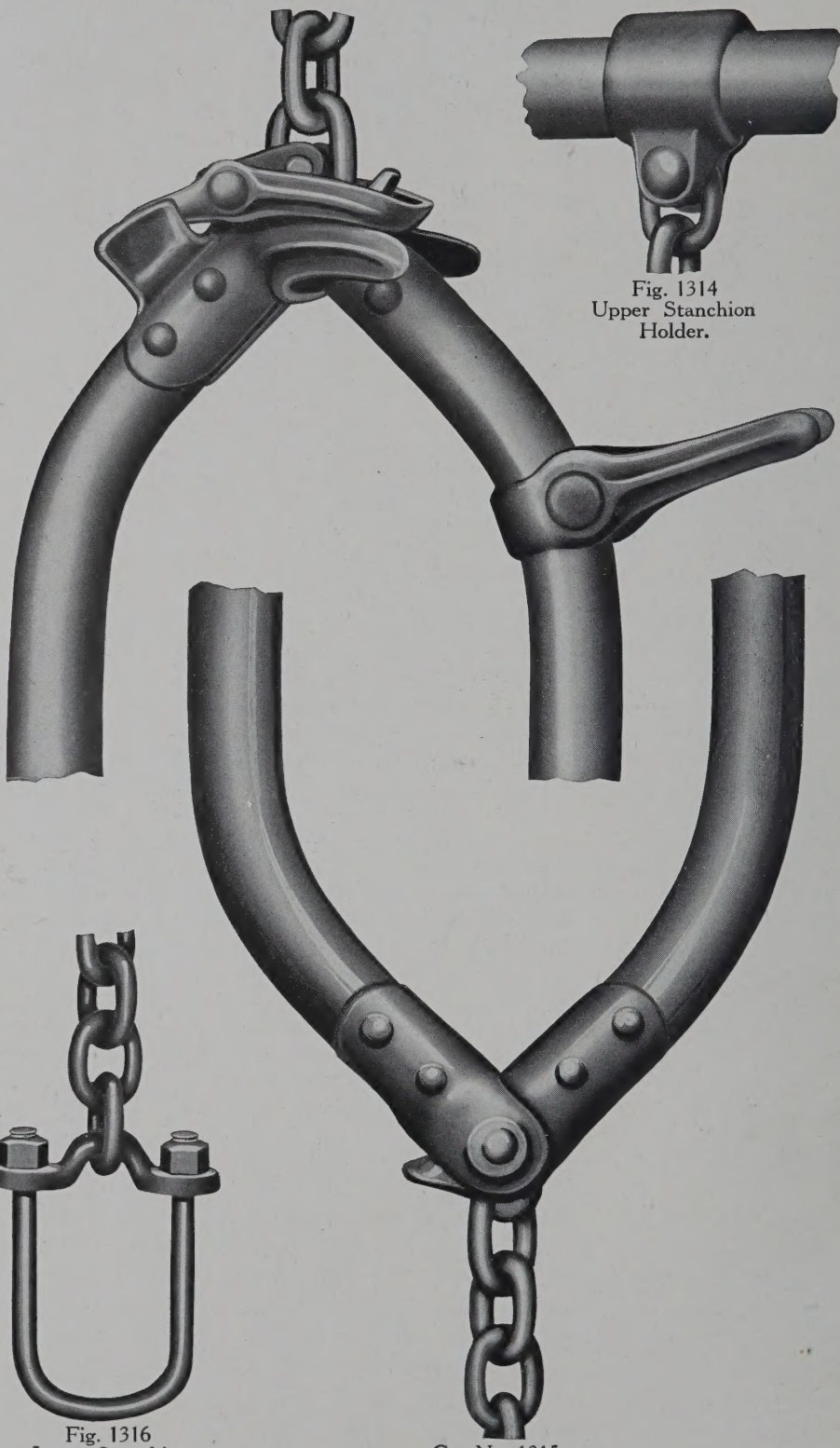
The Louden Tubular Steel Stanchion is made in three different widths—5½, 7 and 8½ inches (Narrow, Standard and Wide). With these three sizes, any cow, from the smallest to the largest can be securely and comfortably held, 90 per cent of them requiring only the standard or 7-inch size.

The Louden Tubular Stanchion *has* stood the test of time. Its vast popularity is best shown by the fact that the number in use in all parts of the world is near the two million mark. It is sanitary—economical in cost—convenient to use—attractive in appearance—comfortable for the cow—built substantially and durably—it *is* an ideal cow tie in every respect.

Louden Tubular Steel Stanchion — Continued

Fig. 861
Stanchion with Guide

Fig. 1316
Lower Stanchion
Anchor for Concrete



Cut No. 1315
Pat. April 25, 1911

Fig. 1314
Upper Stanchion
Holder.

Louden Tubular Steel Stanchion—Continued

Specifications

Made in three sizes for cows: *Narrow*, having a width of 5½ inches; *Standard*, 7 inches, and *Wide*, 8½ inches—all inside measurements. Length of all sizes, 45 inches inside measurement and 57½ inches from end to end of the chains. *Standard size will always be furnished unless otherwise specified.* Space from top rail to curb must be 4 feet 7 inches (55 inches) to hang stanchion properly.

Made in two sizes for Bulls: Inside widths, 9 inches and 11 inches. Lengths same as specified above. While we strongly recommend placing the bull in a pen by himself, there is, however, an occasional demand for an individual stanchion.

Cow Proof Lock: The Louden Tubular Stanchion Lock is made out of Certified Malleable Iron. Can be operated with one hand—absolutely cow-proof.

Construction: Stanchion is flexibly hung and flexibly anchored allowing from 8 to 10 inches front and back movement so that the bottom end can swing with the natural movement of the cow in getting up—lying down—turning her head, etc. Made out of 1 5/16" O. D. High Carbon Steel produced by the Open-Hearth process—the same quality of steel used in structural building—strong—durable.

Equipment: Stanchions are furnished in either of two ways. The Stanchion with Guide only or the Stanchion with Guide, Holder and Anchor. For convenience the attachments are left off and packed separately in shipping.

Weights. Cow Stanchion: Standard Size, with Guide weighs approximately 16½ pounds, and with Guide, Holder and Anchor, 18½ pounds. Where the Upper and Lower Stanchion Adjusters are furnished instead of the regular Holder and Anchor the complete stanchion weighs approximately 23 pounds.

Bull Stanchion: 9 inch width with Guide 22 pounds; with Guide, Holder and Anchor 24 pounds. 11 inch width; with Guide 26 pounds; Guide, Holder and Anchor, 28 pounds.

All Holders are made to fit either 1 5/8" or 1 7/8" outside diameter tubing. *Be sure to specify size in ordering.*

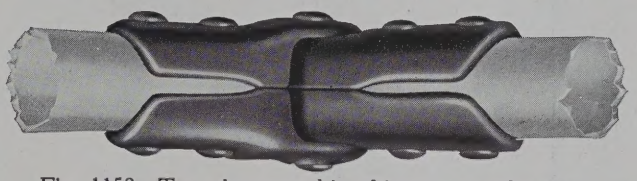


Fig. 1158—Top view stanchion hinge—rugged—strong.

Louden Stanchions installed as long as 17 years ago are still in excellent condition—good for many more years of hard daily service. This best explains what we mean when we say the Louden Stanchion is *quality* built in every single detail.

The material used in the side bars is *High Carbon Tubular Steel* produced by the Open-Hearth (not Bessemer) process—the same high quality of steel that is used in structural building, railroad rails, etc. Each Louden Stanchion tube measures 4½ inches in circumference as against 2⅜ inches for the "T" steel of which ordinary stanchions are made. Hence the material in the Louden stanchion is exceedingly strong, tough and durable—and it makes possible a stanchion of just the right weight—one that does not offer any encumbrance to the cow.

The Louden Tubular Stanchion is absolutely smooth—has no sharp corners to injure the cow's neck; no cracks or crevices to harbor dangerous disease germs, nor built-on strips to work loose or come off. The chain by which the Stanchion is hung and anchored is made out of the best quality of round steel, the material being ⅜ inches in diameter. The ends of each link are electrically welded together, making a smooth, solid *one piece* oval. With this construction the links cannot pull apart under heavy strain—the tensile strength being 5,000 pounds—enough to hold the entire weight of three large cows. Nor will this special chain made for the Louden Stanchion kink. The one piece link—the smooth round material used with proper room within the oval for connecting links to freely turn, are features that prevent the chain from becoming entangled in the least and at the same time assure long years of service.

The great strength of the Louden reinforced Stanchion Hinge is readily seen by an inspection of Fig. 1158. The hinge castings are made in our own foundry out of Certified Malleable Iron, a material which signifies nothing but the highest quality. These castings are shaped to practically *encircle* the lower ends of the tubular stanchion sides and are securely connected to them by *four heavy rivets.* The pivot end of the hinge is made much wider than the pivot end of the ordinary stanchion. A large pivot pin passes through *four thicknesses* of Malleable Iron. Thus the hinge has great strength, especially in the torsional or twisting strain where the average stanchion is ordinarily weak.

If the barn should ever burn, that will not necessarily put the Louden Tubular Steel Stanchions out of commission. Mr. L. W. Putnam, Frederick, Md., who had such an experience, writes:

> "Last fall my barn containing some 1200 bushels of grain and 100 tons of hay and provender caught fire and burned to the ground. The most remarkable thing about the fire was the condition of the Louden Tubular Stalls and Stanchions, which were in the basement. The entire weight of the timbers and the heat of the fire went into these stalls. I thought they were ruined but after clearing the debris away I found they were *absolutely intact.* I built a *temporary roof over them* and in two days I was using them the same as before the barn burned. I think this is a remarkable test of the quality of Louden Stalls and Stanchions."

The Louden Tubular Stanchion is the very essence of simplicity. It has no complicated, trouble-making parts to get out of order. It can be used almost anywhere, in the smallest as well as the largest barn—for the largest or smallest cows—in a common wood frame as well as the most up-to-date steel cow stall. No one who keeps cows, whether one or a hundred, can afford to do without Louden Stanchions.

Louden Wood-Lined Steel Stanchion

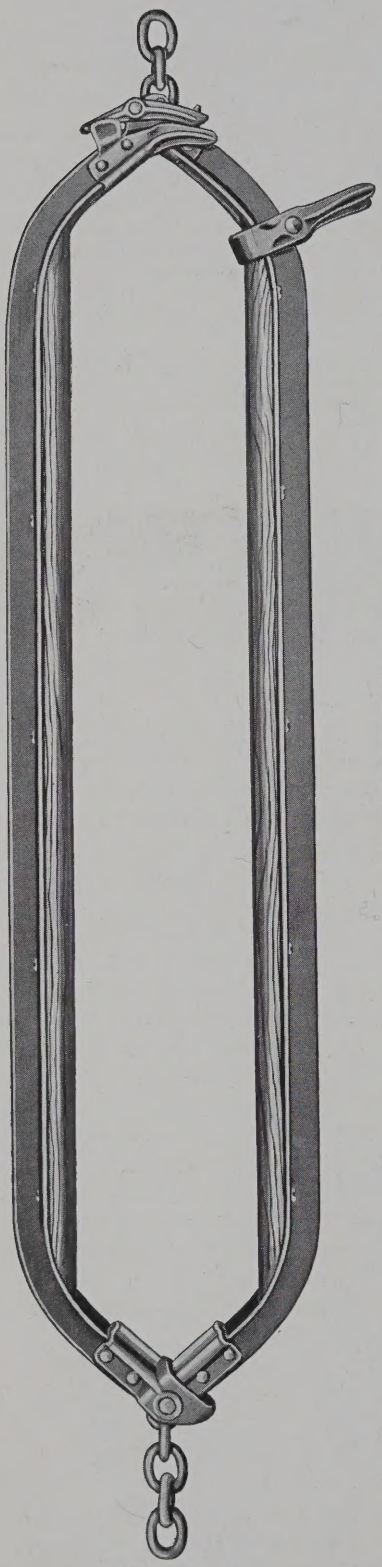


Fig. 937
Stanchion With Guide.

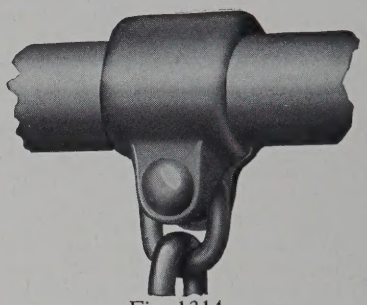
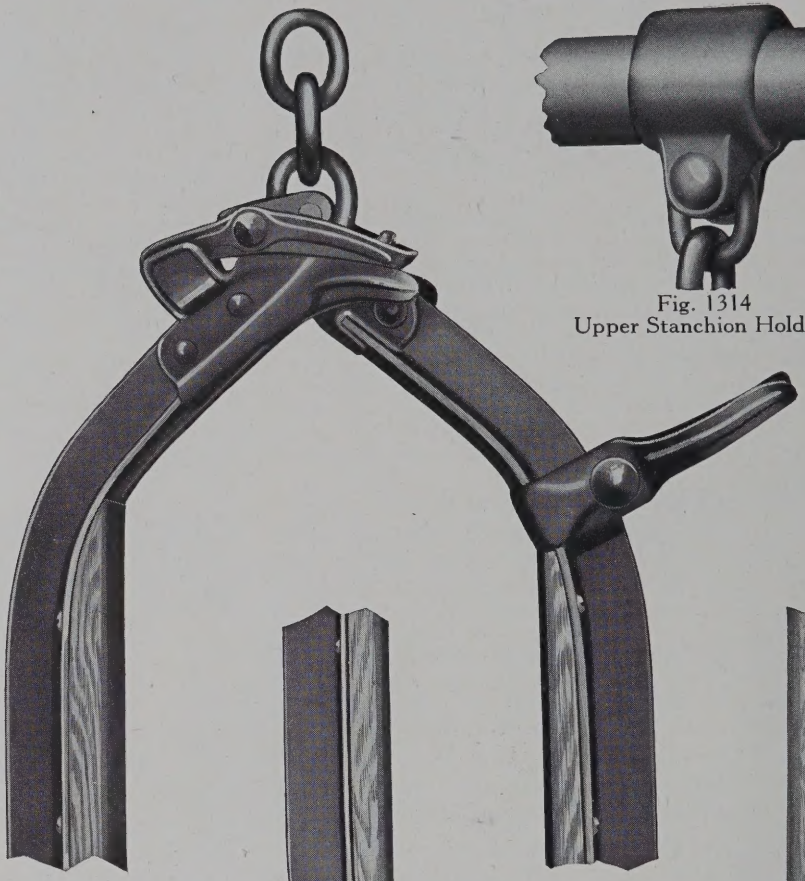


Fig. 1314
Upper Stanchion Holder.



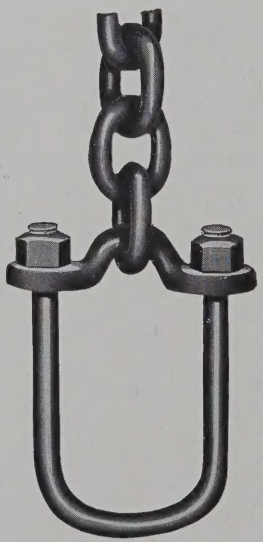
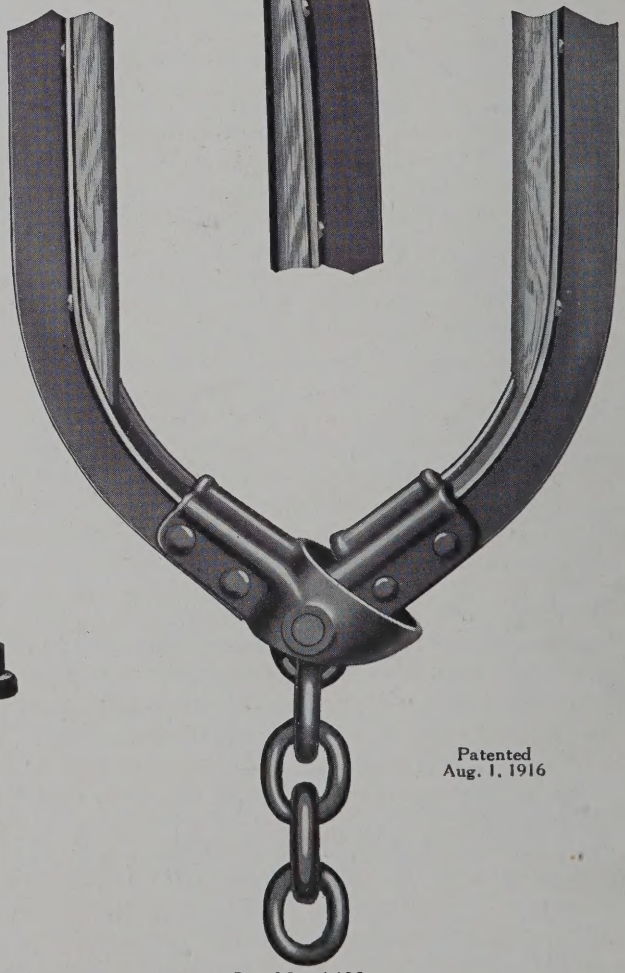


Fig. 1316
Lower Stanchion Anchor
For Concrete



Patented
Aug. 1, 1916

Cut No. 1433
Detail of Top and Bottom.

Louden Wood-Lined Steel Stanchion—Continued

Specifications

Size: The Louden Wood-Lined Stanchion is made in one size only, 7 in. wide and 57½ in. long from end to end of the chains.

Side Bars and Linings: The "T" Side Bars are High Carbon Steel 1"x1"x3/16" with ¼"x3/16" rib. The Wood Linings are ¾"x1" seasoned hard maple.

Construction: Stanchion is flexibly hung and flexibly anchored, allowing from 8 to 10 inches front and back movement so that the bottom end can swing with the natural movement of the cow in getting up—lying down—turning her head, etc.

Cow-Proof Lock: The Louden Wood-Lined Stanchion Lock is made out of Certified Malleable Iron. Can be operated with one hand—yet is absolutely cow-proof.

Equipment: Stanchions are furnished in either of two ways; with Guide only, or the stanchion with Guide, Holder and Anchor.

Weights: The Wood-Lined Stanchion with Guide, weighs approximately 22 pounds and with Guide, Holder and Anchor, 24 pounds. Where Upper and Lower Stanchion Adjusters are furnished instead of regular Holder and Anchor the Stanchion weighs approximately 28¼ pounds.

All Holders are made to fit either 1⅝" or 1⅞" outside diameter tubing. *Be sure to specify size in ordering.*

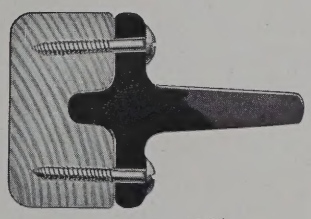
Some people have the impression that steel is cold on the cow's neck and therefore want the stanchion lined with wood to keep her neck warm. Our Wood-Lined Stanchion is in response to this demand.

While actually *no colder* than wood, metal is a more active conductor of heat and cold. Therefore, when placed against naked skin in freezing weather, metal perhaps seems a trifle colder at first touch, giving the impression sometimes obtained, that an all-metal stanchion is cold on the cow's neck. However, the conditions that apply to the cow and the stanchion are not parallel with the above illustration. To make them so, the hair on the cow's neck would have to be shaved off and the metal bar would have to be pressed against her naked skin. Neither are true. For a properly hung stanchion will not often more than merely touch the cow's neck and even then it touches her coat of hair and not her naked skin.

Put mittens on a man's hands, blindfold him, set up side by side, a well oiled fork handle and a piece of tubular steel of the same size, let him loosely encircle each with his mittened hands as the cow's neck touches the stanchion, and he cannot tell the one from the other by the difference in temperature.

The very fact that no wood lined stanchion has wood linings across the bottom tends to show that the wood is not an essential feature for the cow's comfort. For she lies down at least half the time, thus, her neck comes in direct contact with metal regardless of the type used.

Throughout many years we have manufactured both the Tubular Steel and the Wood-Lined Steel Stanchion. During this long period we have constantly studied actual cow requirements and have made many practical tests. In *not* a single instance have we ever found wherein wood linings added *one iota* in making the cow comfortable. Nor have we ever had a single complaint, on the metal being cold, from the users of close onto two million Louden Tubular Steel Stanchions—many of them in the coldest parts of Canada and other cold parts of the world.



Cut No. 1026

Regardless of how well any wood lined stanchion is designed or constructed it is not as smooth and as easy to keep clean as the Tubular Steel Stanchion. There is bound to be at least a slight crevice at the joint where any lining fastens to the side bar—hence, a pocket to collect dust and harbor disease germs. Nor is a wood lined stanchion as strong as the Tubular Steel Stanchion. Our desire to serve our customers best, prompts us to give these unbiased facts.

However, if you prefer a Wood-Lined Stanchion, the Fig. 937 Louden *is* the peer of that type. With the exception of the side bars, it has *all* the strong, superior features of the famous Louden Tubular Steel Stanchion. It has the same extra strong certified malleable hinge, the same convenient animal proof latch and the same sloping ends. It is also provided with the same non-kinking chain of 5,000-lb. tensile strength and is arranged to be *flexibly hung* to give freedom of movement and comfort to the cow.

In addition to this, it has special features of its own. The "T" bar is heavy and is reinforced with an extra rib on its inner side, as shown by Cut No. 1026—all of which makes it still stronger. The wood lining strip has a groove on its inner face which fits over the rib on the bar and this makes it extremely difficult to knock the strip off, even with a hammer. It would have to be all broken up and split to pieces before it could be forced off. The wood linings of the ordinary stanchion are not so strongly attached. To give the cow perfect comfort, the ends of Louden wood linings are beveled off and made entirely smooth as shown in the cuts. There are no sharp ends of wood to constantly jab the cow or otherwise distress her.

Thousands of Louden Wood-Lined Stanchions are in daily use, giving good satisfaction. We are thoroughly equipped to manufacture this stanchion and from a manufacturing point of view, it makes no difference to us which stanchion you choose.

Louden 5-in-1 Steel Stanchion—Fig. 1161

Fig. 1161
5-in-1 Stanchion.

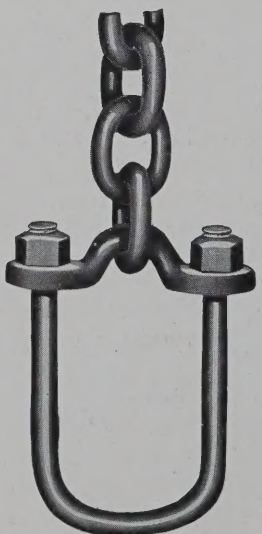
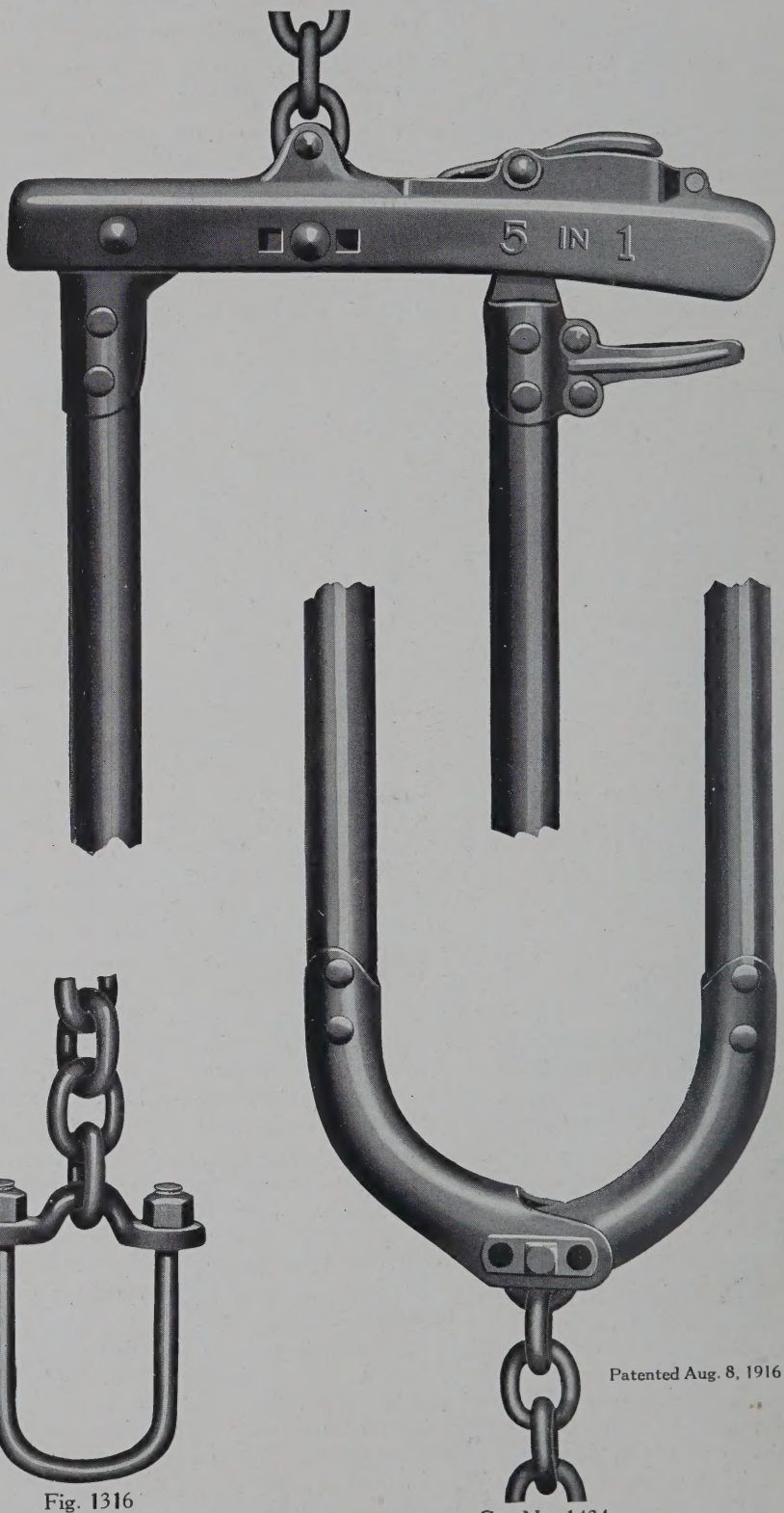


Fig. 1316
Lower Stanchion Anchor
For Concrete.



Patented Aug. 8, 1916

Cut No. 1434
Detail of Top and Bottom.

Louden 5-in-1 Steel Stanchion—Continued

Specifications

Sizes: Stanchion may be adjusted to five different neck widths, 5½", 6¼", 7", 7¾" and 8½". Inside length of all sizes 45 inches. Outside length from end to end of chains 57½ inches. Space from top rail to curb must be 55 inches to hang stanchion properly.

Construction: Top of Stanchion is completely housed in—it together with hinge castings are made out of Certified Malleable Iron. Side Bars are 1⅝" O. D. High Carbon Steel produced by the Open-Hearth (not Bessemer) process—the same high quality of steel used in structural building.

Stanchion is flexibly hung and *flexibly anchored,* allowing from 8 to 10 inches front and back movement so that the bottom end can swing with the natural movement of the cow in getting up—lying down—turning her head, etc.

Cow Proof Lock: Lock is made out of Certified Malleable Iron. Can be operated with one hand—absolutely Cow-Proof.

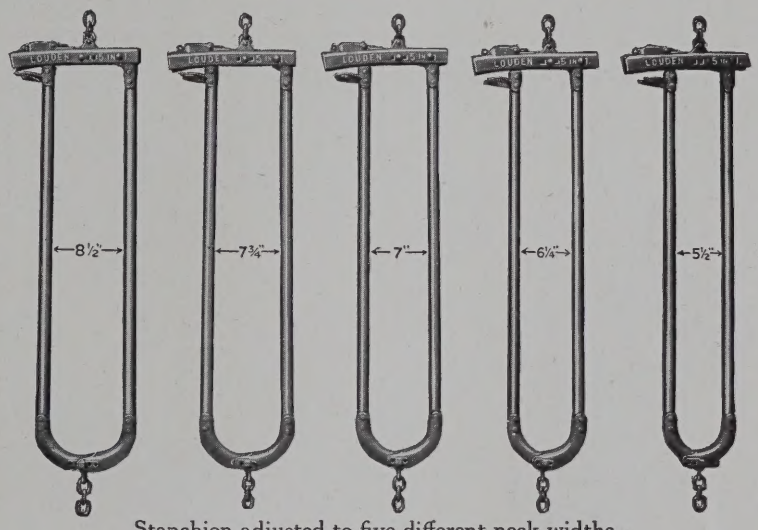
Equipment: Stanchions are furnished in either of two ways. The plain Stanchion only or the Stanchion with Holder and Anchor. In both cases the guide is a part of the complete Stanchion.

Weights: Plain Stanchion weighs 24½ pounds. Stanchion with Holder and Anchor weighs 26 pounds. Where the Upper and Lower Stanchion Adjusters are furnished instead of the regular Holder and Anchor, Stanchion weighs 31 pounds.

All Holders are made to fit either 1⅝" or 1⅞" outside diameter tubing. *Be sure to specify size in ordering, so that correct material may be furnished.*

The "*Louden 5-in-1*" Stanchion is an *Adjustable Stanchion.* The neck space may be made 5½", 6¼", 7", 7¾" and 8½" wide by placing the hinge bolt and head piece bolts in the proper holes for the desired width. But regardless of what size the Stanchion may be adjusted to, it will *stay there* and will be just as solid and unchangeable as if that were its only width.

The top or head piece of the "5-in-1" Stanchion is housed over thereby eliminating the possibilities of dirt or disease germs collecting. This feature, together with the smooth round tubular Side Bars and dirt-proof Hinge Castings assures a Stanchion that is sanitary. A matter of vast importance not only in producing clean milk but also in protecting the health of the herd.



Stanchion adjusted to five different neck widths.

When open, the swinging Side Bar of the Stanchion extends out and automatically engages on the upright post of the stall. However, even when opened full width, the sliding latch piece ever remains connected to the head and thus relieves the strain on the loose arm and hinge, should pressure be thrown on this arm when not engaged with the stall post. Cut No. 1162 illustrates this feature.

As with all other Louden Stanchions, the "5-in-1" is flexibly hung and flexibly anchored. Hence, it permits a front and back movement at its lower end of from 8 to 10 inches. A construction that is absolutely necessary in providing for the cow's natural comfort in getting up—lying down—turning her head, etc.

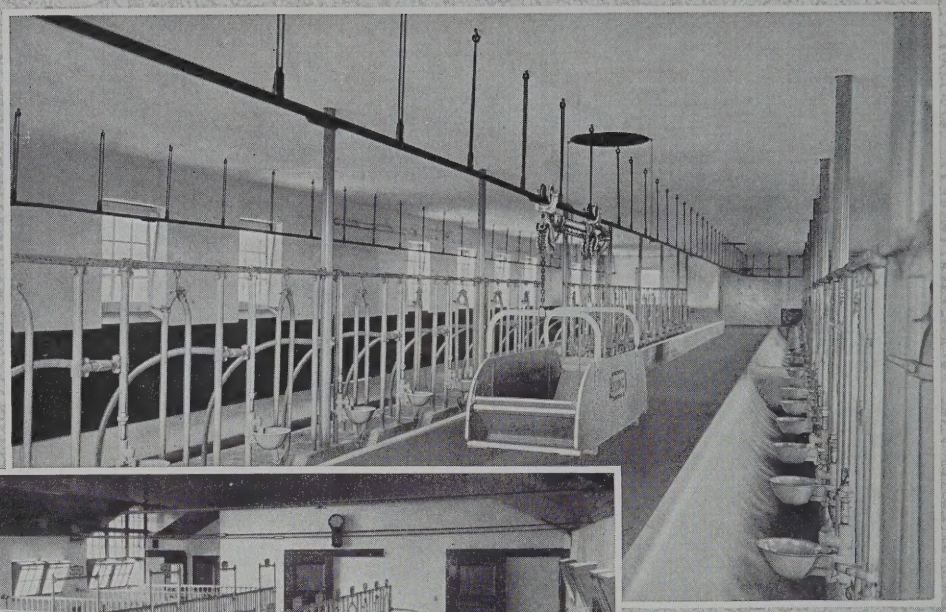
The Side Bars of the Louden "5-in-1" Stanchion are made out of 1⅝" outside diameter High Carbon Tubular Steel produced by the Open-Hearth (not Bessemer) process. This is the same superior grade of steel used in structural building work—in railroad rails or in fact any place where quality is a first requirement. It is exceptionally strong and durable—*it is* the ideal material for a quality built Stanchion. The remainder of the Stanchion proper is constructed out of Certified Malleable Iron—the *best* that can be produced. The chains are made up of electric weld, one piece links, each with a tensile strength of 5000 pounds.

Cut No. 1162

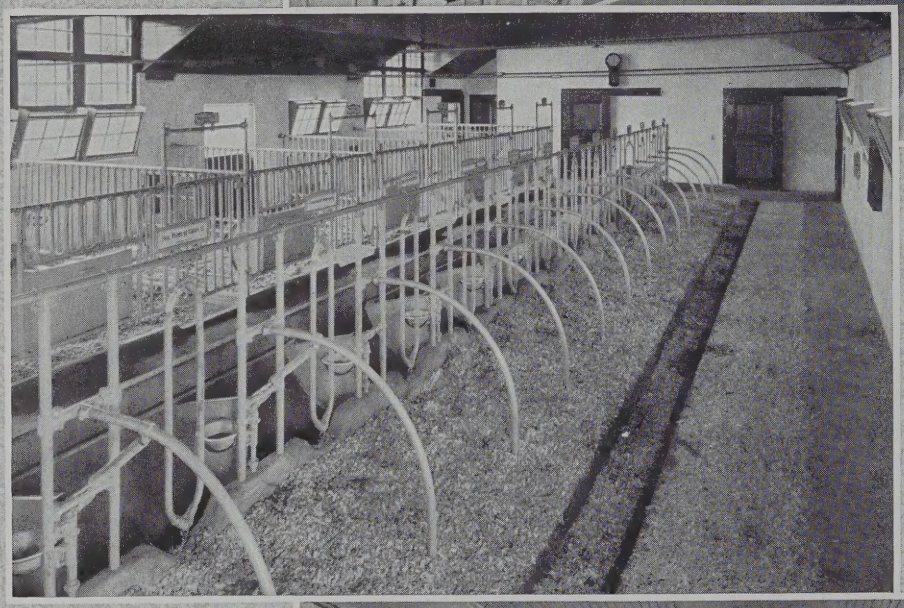
Top of Stanchion with front plate removed, illustrating parts as they appear when Stanchion is open. View also shows how rigid arm at the left may be adjusted in or out by placing the bolt in either of the three holes. The central bolt under chain may be adjusted likewise.

The Latch is Cow-Proof.

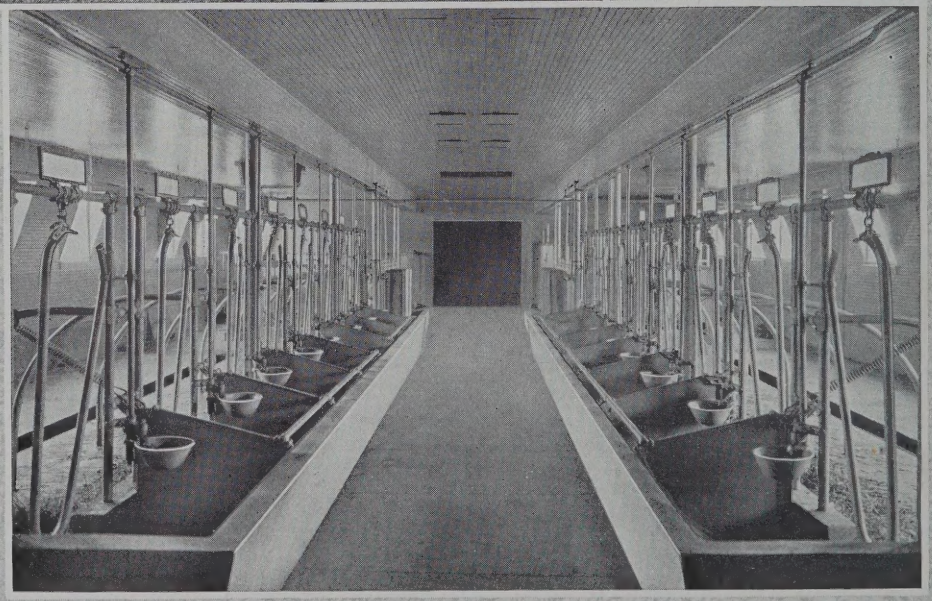
The Stanchion is easily adjusted to the different sizes and wherever an Adjustable Stanchion is desired the Louden "5-in-1" will be found extremely practical and efficient in every single detail.



Louden Water Bowls increase the milk yield from each cow in the herd. Barn of State Hospital of Criminal Insane, Fairview, Pa.



This Famous Dairy finds Louden Water Bowls profitable when used in pens as well as on stalls
J. A. Ames, Owner,
North Easton,
Mass.



The water supply may be brought to Louden Bowls from either above or below as desired
John L. Stettinius Barn,
Batavia, Ohio

Louden Water Bowls

More Milk from Each Cow

Milk is 7/8 water.

Therefore, in making milk it is just as necessary for the cow to have water as it is for her to have feed.

And in order to make all the milk she is capable of making the cow must have *all* the water she wants, *when she wants it*, whether it be day or night.

Many cows that seem to be poor milkers are only so because they do not get enough water to make up to their full milk capacity.

Authorities estimate that an average dairy cow should drink around 16 gallons of water each day to produce the full amount of milk she is capable of producing. Multiply the number of cows in your herd by 16 and you have the number of gallons of water they should be consuming every 24 hour period. Are your cows getting sufficient water?

As a rule, a cow drinks just about enough at each watering to quench her thirst at that particular moment. She cannot store up an additional supply to take care of her digestive work during the time between drinks. Thus the cow that does not have access to a water bowl, does not get water as often as she needs it—and of course, does not have the opportunity to make her maximum capacity of milk.

If the cow *is* handicapped by not getting enough water, a certain amount of the feed you are putting in to her for the purpose of producing milk is wasted. One drink, two drinks or even three drinks during the day is not enough. She must have a little right along as her digestion demands it. She might need water 10 times today and 15 times tonight and tomorrow it might be 12 drinks during the day and only 8 at night. Nobody knows but the cow and the only way she has of letting you know is by the amount of milk she gives.

Further, when a cow is turned out to water once or twice a day in the winter, she shivers and chills all the time she is out. The sudden change from the comfortable temperature of the barn to the zero weather with its snows and blizzards is a shock to her entire system. Regardless of how thirsty she may be, she is apt to take only a small drink because the icy water adds further to her discomfort. She doesn't consume the water she needs so badly and worst of all when she gets back into the barn it takes a good many pounds of feed to warm her system up again. The money represented by this feed is thrown away—it has had to serve as a heater instead of a milk maker. Besides such experiences constantly jeopardize the cow's health.

Watering cows by such a method is a money-losing proposition regardless of how you figure it.

Maximum Milk Production the Year 'Round

Louden Water Bowls change this situation entirely—from milk loss to milk gain—by simply supplying the cows with the water they need—exactly when they want it, whether this be five o'clock in the morning or eleven o'clock at night. Water that is just the right temperature for the cow's digestive work.

Louden Bowls do away with that money-losing method of turning cows out to an ice cold drink two or three times a day. They keep a constant supply of good fresh water right before each cow every minute of the time. Standing in the warm barn—in her own comfortable stall, the cow drinks without a single discomfort.

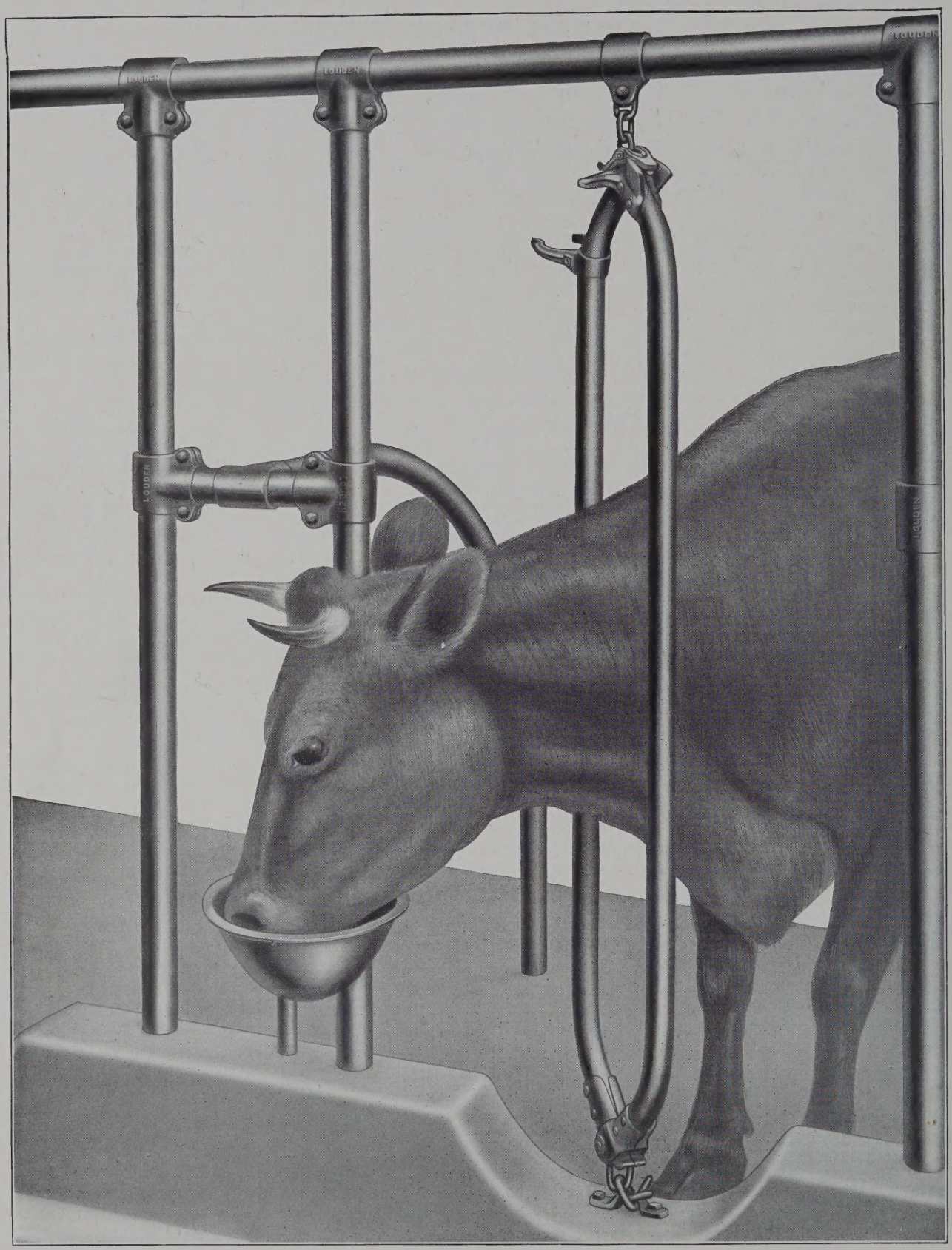
And the attendant appreciates Louden Water Bowls almost as much as does the cow. For they entirely eliminate that most disagreeable chore of turning the cows out and driving them in again—chopping a hole in the ice covered trough and all the bodily discomforts that go with the job.

Figure this saving in time alone, that Louden Bowls make possible in your barn, caring for your herd. It takes anywhere from a half hour to an hour and a half, depending on the number of cows, every time they are driven out to water, one, two or three times a day as the case may be. It is bound to amount to three or four minutes per cow, each watering. Therefore, even if the time saved were all that Louden Water Bowls did for you, this one item in itself would pay for them—the first winter.

And yet all important as it is the labor Louden Bowls save is really secondary to the additional milk they make possible from each cow.

Louden Bowls eliminate the necessity of the tank heater. It with all the bothers and troubles of caring for it goes, and the fuel it burned, whether wood or coal is another saving not to be overlooked.

Louden Bowls *do* save a lot of work every day—year after year. They *do* avoid that excitement and confusion that goes with turning the herd out once or twice a day during the winter. They *do* increase the milk yield of each and every cow that has an opportunity to use them. And they do so by utilizing one of the cheapest commodities you have on the farm—WATER.



FAIRFIELD, IOWA

What Louden Water Bowls Are Doing for Others

They Will Do For You

After all, "The proof of the pudding is in the eating." Therefore the proof of what Louden Water Bowls will do for you is best told by what they are doing for others. Below we quote from only a few of the hundreds of letters received from enthusiastic users—letters from small dairymen and large dairymen, in widely separated sections of the country—all giving evidence of one fact—that Louden Water Bowls *do* increase the milk yield.

Mr. W. B. Morris, The State Road Dairy, Eldorado, Ill., says: "Before installing Louden Water Bowls I was milking 10 cows and getting 30 gallons of milk, by weight, per day—an average of 3 gallons per cow. I am now milking 11 cows and by using Louden Bowls am getting 45 gallons by weight of milk per day—an average of a little over 4 gallons per cow. One cow whose record I have before me has gone from 50 lbs. a day without bowls to 63 lbs. with the Louden Bowl and is still gaining. I attribute all of these increases in milk yield solely to Louden Water Bowls."

Mr. F. W. Morrison, Worcester, Mass., states: "We keep careful data on the production of each cow. Our records show that we installed Louden Bowls Jan. 5th. The first month they were in use one heifer increased her milk production 103.4 pounds and the second month she increased it 169 pounds or a total increase of 272.4 pounds for the two months period. A gain equivalent to more than 125 quarts. Another animal which had been milked continually for a year increased her milk production 113 pounds the first month after using Louden Bowls and 105.1 pounds the second month. A third animal increased her milk yield 267.9 pounds during the first two months she used the Louden Bowl. The total gain for these 3 cows, the first two months that Louden Bowls were used, was approximately 350 quarts. The value at 8 cents per quart was $28.00. And there were similar gains throughout the entire herd. Since the cows were fed and cared for in the same manner before and after the Louden Water Bowls were installed I feel positive that the bowls were alone responsible for the increased production shown."

E. L. Thompson, Deer Island, Oregon, writes: "Louden Bowls have increased our milk production 10 per cent. Our income from milk alone is $2,500 per month. Hence this increase is a very important item."

John Kermmetmuller, Rogers, Minn., says: "Louden Water Bowls represent the best investment a dairyman can put into his barn. They have increased the production of every cow in my herd and have entirely done away with all the work of driving the cows out and in at each watering."

You can expect similar results of increased milk production and less work by using Louden Water Bowls.

Prevents Spread of Disease Through Water

And in addition to the greater milk yield and the tremendous saving of work that the Louden Bowl makes possible—it does even more—for it helps to protect your herd against contagion. The valve, the heart of the bowl, is so designed and constructed that an even steady flow of fresh water enters when the nose piece is operated by the cow. However, at no time is it possible for the water that once enters the bowl to flow back into the general supply or in any way reach the bowl of another cow because the Louden valve is kept closed by a heavy non-rusting brass spring.

Hence, the Louden Bowl prevents the spread of tuberculosis or other germ diseases from one cow to another through the water. The healthy cow cannot come in contact with water from a diseased cow. This is all the more important when you stop and think that many germ diseases are not always apparent for a time and that watering cows out of a tank or manger enables such cows to contaminate the entire herd.

With the Louden System each cow has her own individual bowl. The water she drinks comes *direct* from the well, storage tank or whatever the source may be. Should she be diseased the Louden Bowl automatically isolates her from the rest of the herd as far as the spread of the disease through the water is concerned.

Easily Installed — Easy to Keep Clean

All that is necessary in the complete Louden System is the Water Bowl itself and the ¾ inch pipe connecting up to the main source of water supply. And the Bowl may be located back of the stall, in front of it or well to one side just as you desire for Louden fittings permit of this wide variation. But regardless of where located, the ingenious one bolt attaching clamp makes fastening it in place just a minute's job and the bowl is there to stay always held strongly and rigidly in position. The whole procedure is so simple that ordinary help can install it.

The Louden Bowl is smooth—exceedingly easy to keep clean. However, should it be desirable to sterilize or scrub it once in awhile just raise the nose piece vertically, lift up the Bowl and slip it off. It is no task at all for human hands yet it is an impossibility for the cow. And the fact that there are no rusty set screws to unloosen—no supporting lever to tinker with in removing the bowl for cleaning, further illustrates its advantage over ordinary bowls that embody such principles.

The Louden Water Bowl *is* convenient and neat in design. It *is* sanitary, simple in operation and strongly built. It *is* a quality bowl even to every hidden part.

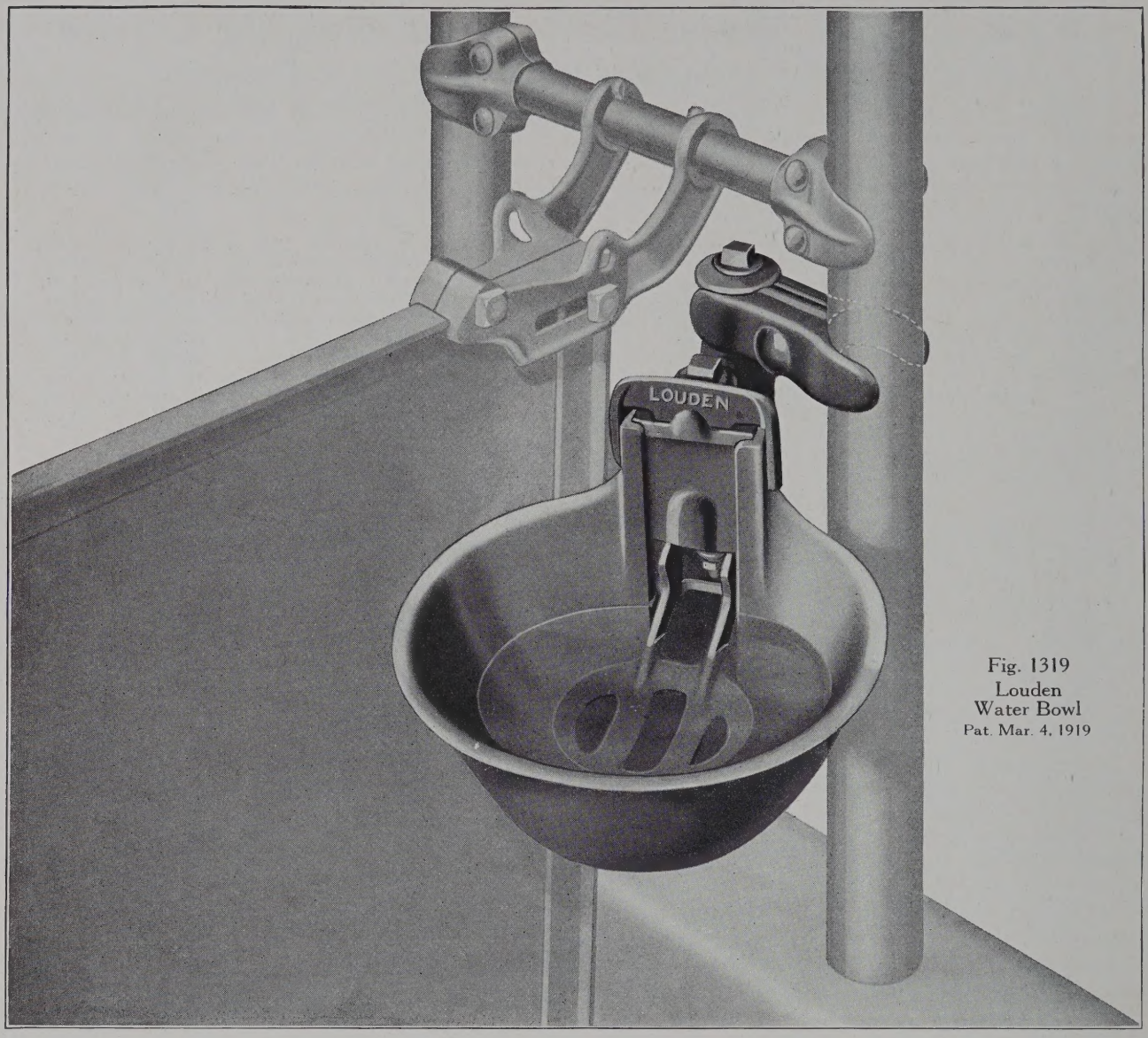
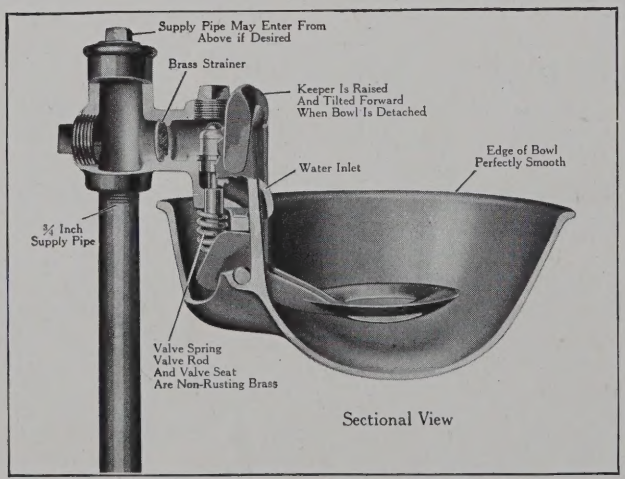
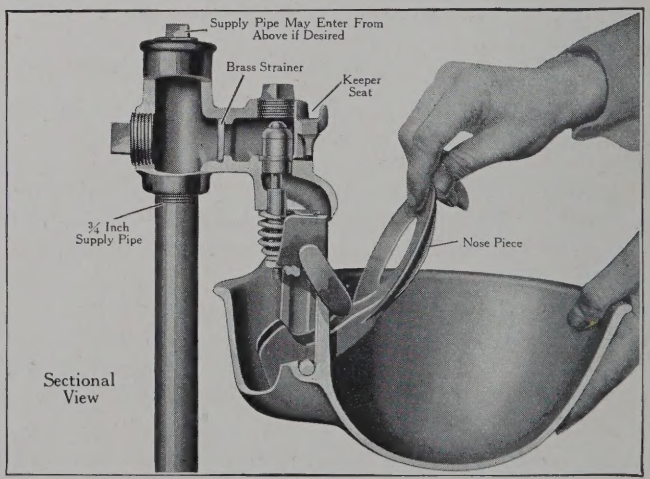


Fig. 1319
Louden
Water Bowl
Pat. Mar. 4, 1919


Supply Pipe May Enter From Above if Desired
Brass Strainer
Keeper Is Raised And Tilted Forward When Bowl Is Detached
Water Inlet
Edge of Bowl Perfectly Smooth
¾ Inch Supply Pipe
Valve Spring Valve Rod And Valve Seat Are Non-Rusting Brass

Sectional View



Sectional View

The Louden Water Bowl — Fig. 1319

Specifications

Construction: Bowl is made out of heavy Gray Iron of Special A-1 quality. Valve Rod, Valve Seat and Valve Spring are made entirely out of Brass and are non-rusting. Assures long years of life and perfect operation.

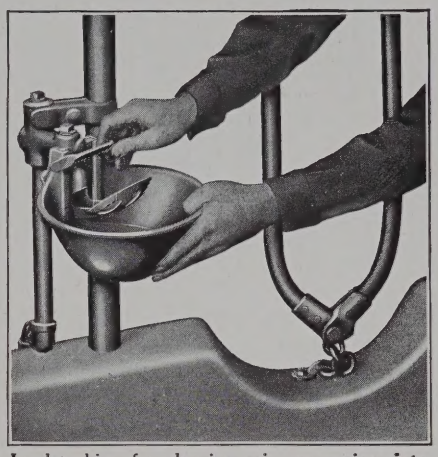
A **Brass** Strainer through which all water flows is built into *each* Louden Bowl—prevents possibility of valve sticking and flooding the barn. Bowl is constructed to fit ¾ inch Supply Pipe. Pipe not furnished. Bowl can be attached to either 1⅝" or 1⅝₁₆" O. D. Stall Post.

One Bolt attaching clamp holds Bowl rigidly to the upright stall post—makes installing both simple and quick. Bowl can also be furnished to attach to Wooden Posts or Wooden Walls. Attaching Clamp made of Certified Malleable Iron—an assurance of quality. Should water pressure vary, the Valve Spring may be adjusted to suit pressure without disturbing Bowl in any way.

Bowl can be detached for cleaning in 10 seconds' time. Size of Bowl is 9¼" x10¾"x4½" deep. Bowl complete is packed in wooden box. Weight approximately 17 pounds.

Operation: Cow pushes down on nose piece which in turn opens the valve and allows water to flow in. When not in operation heavy Brass Spring holds valve tightly closed. Water cannot flow from one bowl to another. Prevents spread of contagious disease through the water.

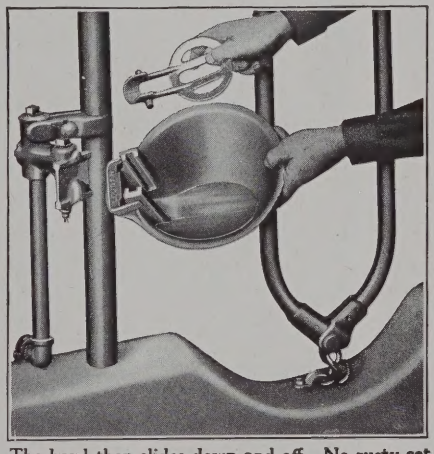
Removing For Cleaning: Raise nose piece into vertical position. This permits elevating the Bowl just enough to swing the top keeper forward out of its seat. Bowl then slides down and off. Easy—quick—cow-proof.



In detaching for cleaning raise nose piece into vertical position, elevate bowl just enough to permit swinging top keeper forward out of its seat.

Quality Even to Every Hidden Part

Take the valve of the Louden Bowl for instance. The main casting is made strongly out of special high quality gray iron. You say other valve castings are made out of iron too and that from the outside at least they all look a good bit alike and so they do, but—take a look inside—see what the hidden parts are made out of. There lies the heart of any water bowl. There are the working parts that come in contact with the water—that control it. There is the mechanism that either makes your bowl operate perfectly for years or that gives you constant trouble instead, by leaking, rusting out, etc. There, covered up, in the Louden, you will find a *brass* valve seat, a *brass* valve stem and a *brass* valve spring. There then at this vital hidden spot the Louden *is* constructed differently from the ordinary bowl. And this quality construction *is* the assurance that the valve will not stick—will not rust out—that the Bowl will give you perfect service—for years.



The bowl then slides down and off. No rusty set screws to unloosen, no lever to tinker with—requires less than 10 seconds. Yet is absolutely cow-proof.

Brass Strainer in Each Louden Bowl

Another hidden part built into the valve casting, that you cannot see from the outside is the *brass* strainer through which all water flows that enters the bowl. It prevents sand, iron rust or other sediment from collecting around the valve seat and causing leakage. It *is* important. There is one in *each* Louden Bowl instead of just one to a group of bowls or an entire system.

And in every other part the Louden Bowl is built in the same superior manner—out of the highest quality of materials—with a design that is extremely neat and attractive.

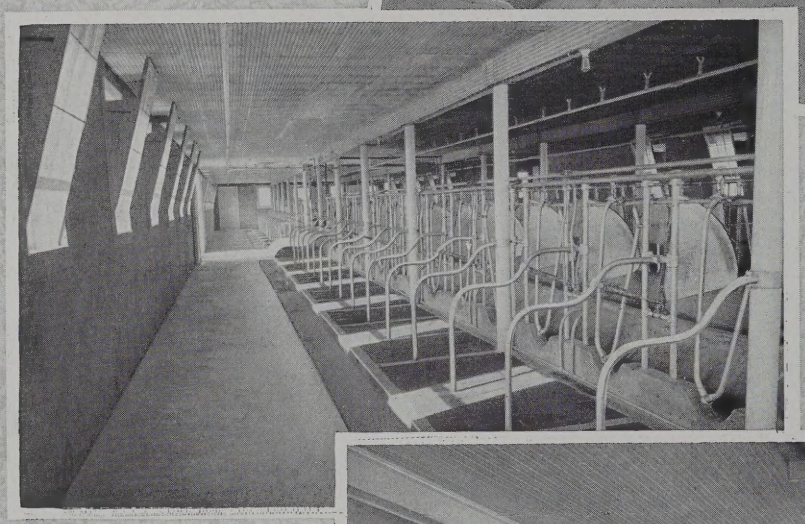
The Louden Bowl is an exceptionally *good* Bowl. It waters the herd perfectly. It will make you from $15.00 to $25.00 extra profit per cow each winter in milk alone. It will save you all the hard work of out door watering—the discomfort to both you and your cows. It will protect your herd against the spread of disease through the water. It will save you tank heater annoyance and the expense of the fuel required.

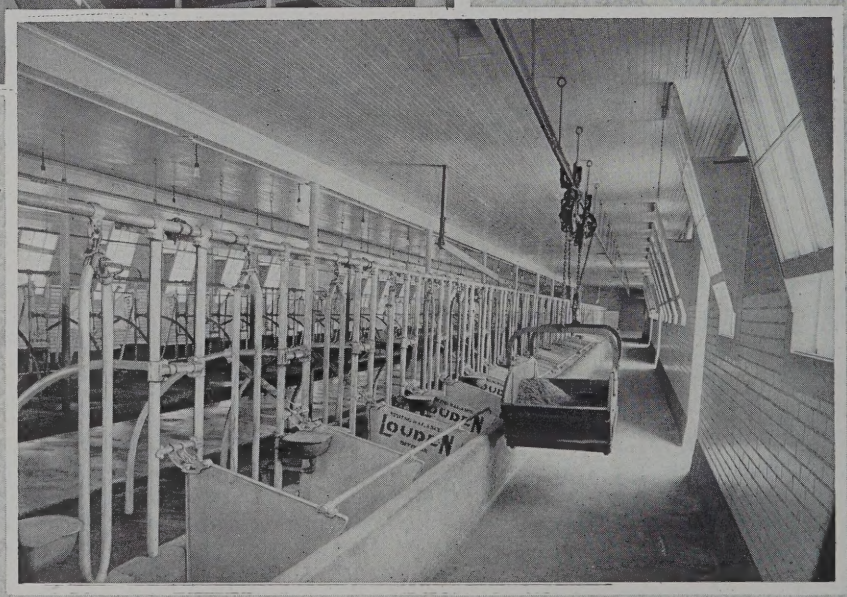
Can you afford to go another month without it?

Ready for an occasional cleaning. Note the smooth regular surface—the absence of pockets to catch and hold dirt. A sanitary feature of the design.

Comfort in the pasture—
Comfort in Louden Stalls—
means maximum milk
production from each cow

Each cow gets the feed that belongs to her with Louden Individual Manger Divisions
The Overland Guernsey Farm,
Kansas City, Mo.

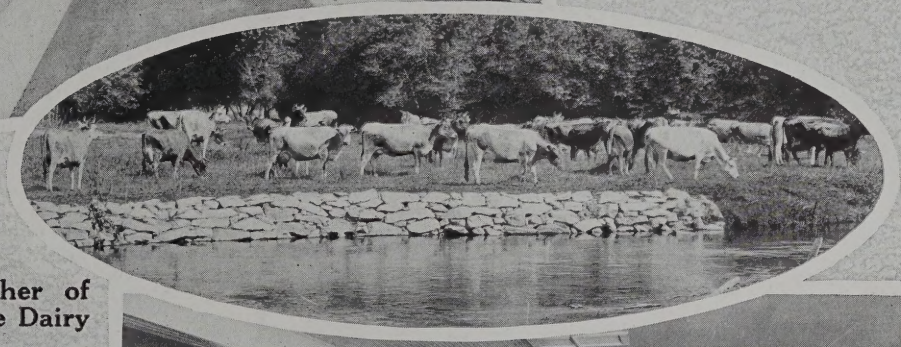




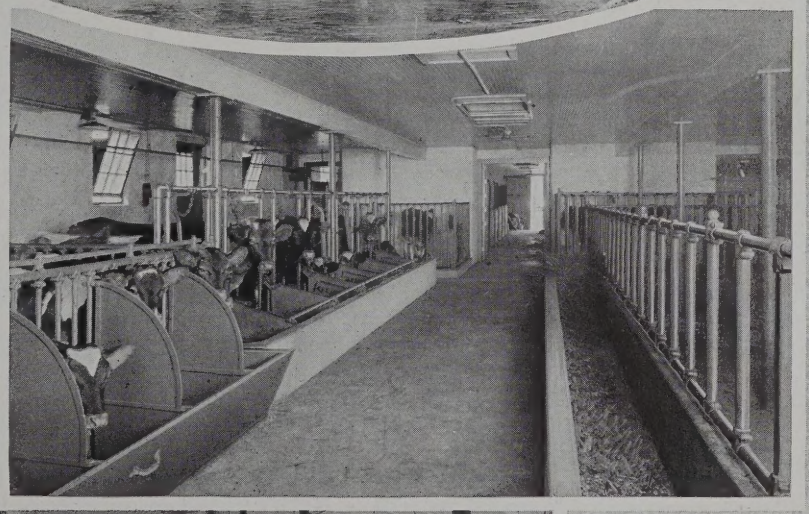
Louden Spring Balance Divisions make cleaning the Manger Easy—Quick
Ingle Investment Co.,
Winslow, Ind.

Feeding a balanced ration is possible where Louden Manger Divisions are used
Thos. Taggart Barn,
French Lick, Ind.

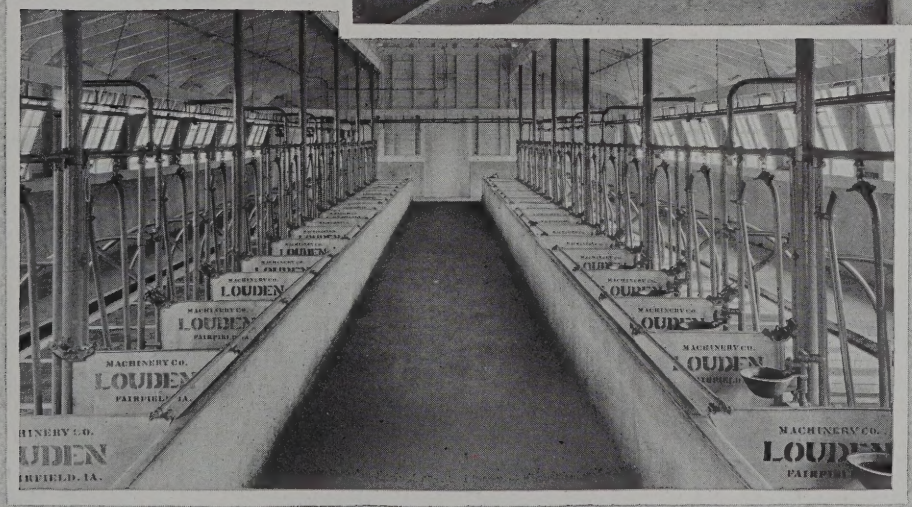
Louden Spring Balance Manger Divisions Line up perfectly when raised for cleaning
Interior of Stephen Bull's Barn,
Racine, Wis.



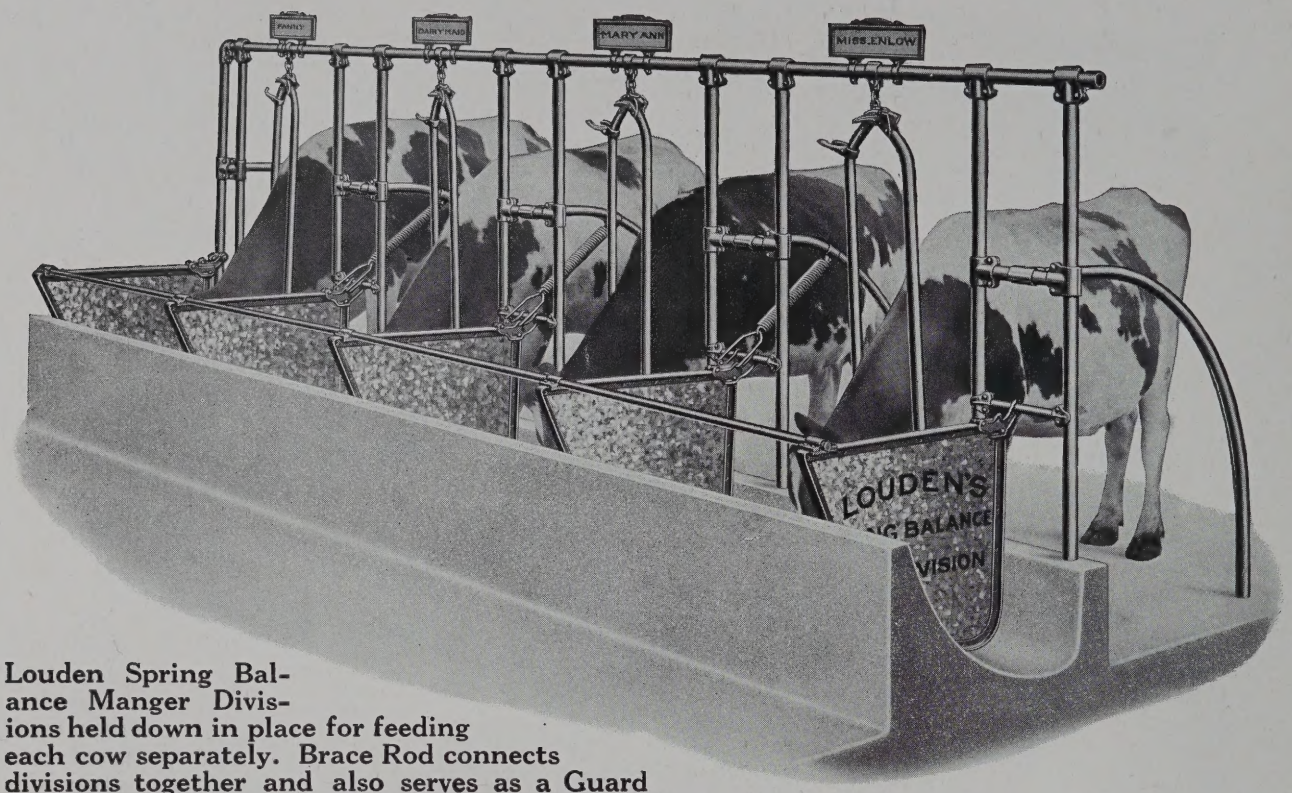
The Foster Mother of Humanity — The Dairy Cow



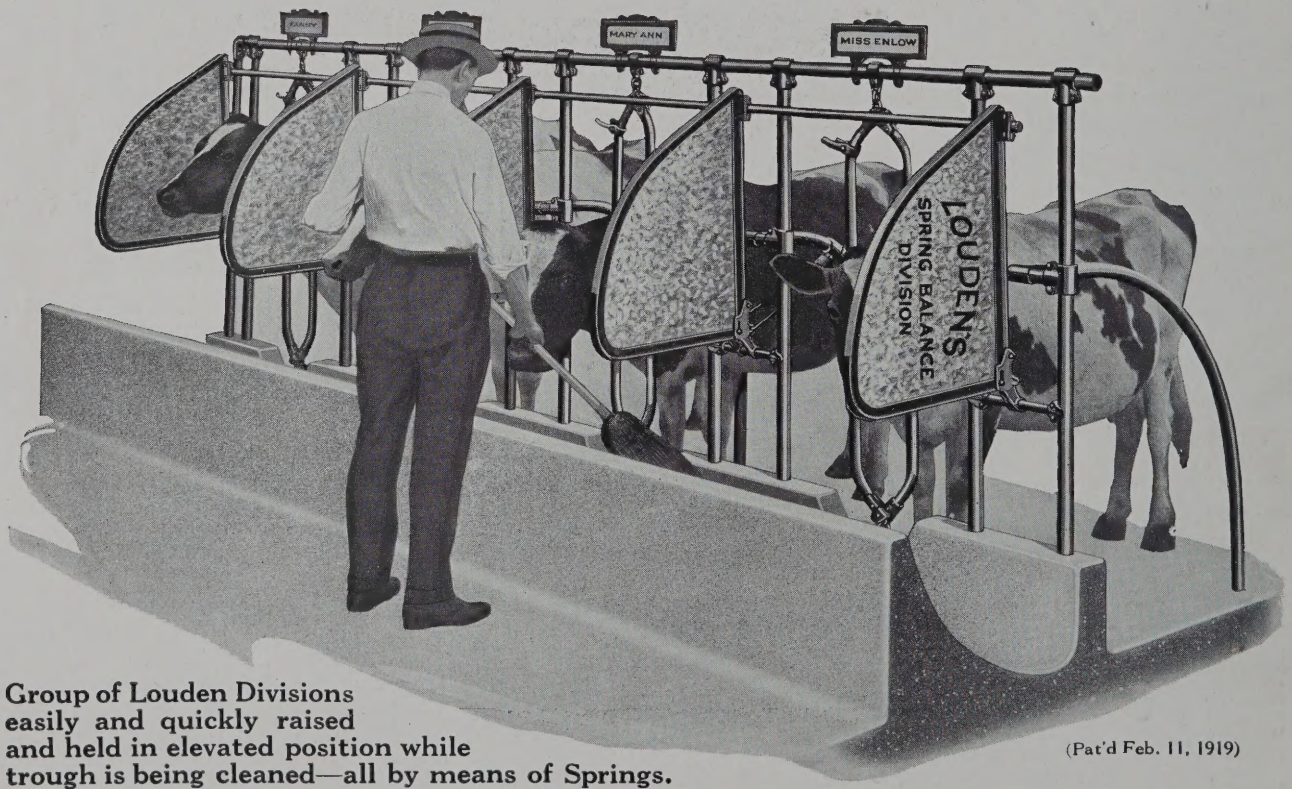
Louden Spring Balance Divisions down in place for feeding
Morse Farms,
Libertyville, Ill.



Individual drinking and eating facilities with Louden Water Bowls and Louden Manger Divisions in barn of Mr. A. L. Alexander, Shreveport, La.



Louden Spring Balance Manger Divisions held down in place for feeding each cow separately. Brace Rod connects divisions together and also serves as a Guard against tossing feed out in front.



Group of Louden Divisions easily and quickly raised and held in elevated position while trough is being cleaned—all by means of Springs.

(Pat'd Feb. 11, 1919)

Louden Spring Balance Manger Divisions

Each Cow Gets the Feed She Requires

Different cows require different amounts of feed. One cow may require more than the general average, to make up to her full milk capacity, while another may require less. It is every bit as bad for a cow to get too much feed as it is for her to get too little. By overfeeding, many a good cow is put out of commission for a time at least—and even where she is not actually laid up the extra feed consumed over and above what her system demands for full production is just wasted.

The Louden Manger Division makes it possible to feed each cow separately—to give her just as little or just as much as she needs—to give her the proper mixture, the balanced ration, that she individually demands. It prevents the fast-eating cow from robbing the slow-eating cow on either side of her. It does away with the possibility of one cow getting more feed than she ought to have and another not getting enough. It puts feeding, one of the most important factors in producing milk, on a systematic, business-like basis.

Eliminate Straining for Feed — And Injury

The *shape* of the Louden Concrete Manger, in which Louden Divisions fit, is such that it brings the feed down close to the cow's nose. She *does not* have to drop down on her knees—push herself forward every inch she possibly can and strain to the very limit in order to reach her feed. In such an abnormal position as this, there is always a tendency for the cow's hind feet to slip and thereby cause abortion or injury. Nor is the cow tempted where Louden Divisions are used, to stretch for feed in front of adjoining cows.

Both the Louden designed concrete manger and the Louden Manger Division are important features in keeping the cow from hurting her knees when eating. These together with the flexibly anchored Louden Stanchion, which permits the cow to get up and lie down without striking the manger curb, eliminate the possibility of big knees *entirely*. For the Stanchion is just as important as the manger or division in thus protecting the cow and no Stanchion that *lacks* this sufficient back and forth movement at the bottom—that is fastened with two chains at this point instead of one—can possibly give your cows such protection.

Keep Cows Lined Up on Gutter — Save Work

With the Louden Manger Division the cow eats naturally because she stands in her stall in a perfectly normal position. Hence, she is properly aligned with the gutter behind instead of having to stand away ahead on the stall floor such as she is forced to do when pushing forward or stretching for feed almost out of her reach. Thus Louden Divisions assist very materially in keeping the standing platform clean—in keeping the cows clean—in producing clean milk. And by doing this they save a great deal of hard work so often common in barns where the feeding trough is improperly built or Manger Divisions are not used—where the possibility of this saving in labor was never even given a thought.

Make Possible Clean Manger — Sanitation

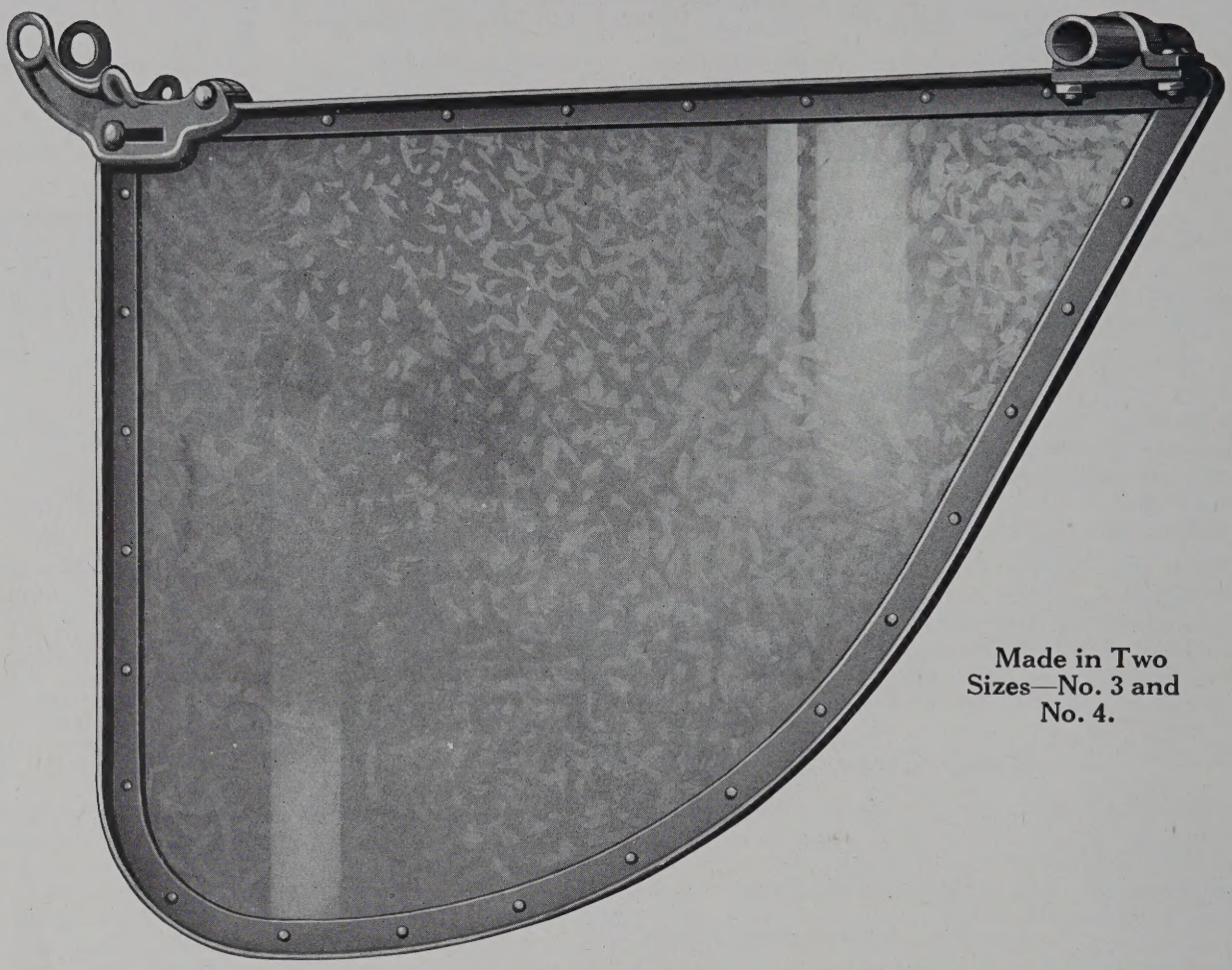
Louden Spring Balance Divisions make cleaning the manger and keeping it thoroughly sanitary extremely easy. By means of heavy coil springs a *group* of as many as five Divisions may be raised at a time, even by a 10 year old boy. And they are automatically held up in place while everything in the trough is swept out or flushed out with water as may be desired. The bottom cut on opposite page illustrates this feature,while the top cut shows how the springs are designed to hold the Divisions down in place for feeding.

The Brace Rod that connects a group of Divisions together so they may be raised and lowered as a unit, instead of just one at a time, also serves to hold each Division rigidly in its proper position—to strengthen it against any side strain that the cow may exert against it. It makes a strongly constructed outfit. In addition, the Brace Rod, located as it is, out near the front of the manger and on top of the Division, acts as a guard that prevents the cow from tossing feed ahead into the feed alley.

The Louden Individually Operated Manger Division described on pages 132-134, while raised and lowered singly without the aid of a spring, is however ingeniously held and automatically locked in both up and down position and permits cleaning the manger in the same easy way as does the Spring Balance Division.

Regardless of which Louden Manger Division you may use—there is one thing certain—it will enable you to feed and handle your cows as your best judgment tells you they should be fed and handled—it will completely do away with the method of letting each cow strive to help herself. But whether you install Divisions now or later on, be sure and get our Manger Patterns before building your concrete manger. They will greatly simplify the work and at the same time assure you a manger in which each cow can eat the feed in front of her stall at least, with solid comfort.

Louden Spring Balance Manger Divisions



Made in Two Sizes—No. 3 and No. 4.

Specifications

Sizes: Louden Spring Balance Manger Divisions are 24 inches high where the hinges are placed and are made to fit three sizes of concrete troughs, as shown on the opposite page. The No. 3 Division extends out 30″ in front of the center of the stall post and the No. 4, 34 inches.

The Material: Louden Spring Balance Divisions are made out of No. 18 gauge best galvanized steel. Each Division is reinforced entirely around the edge with heavy tee iron, giving it great strength and rigidity. The Hinge is made out of heavy Certified Malleable Iron—an assurance of the highest quality. Division may be adjusted forward or backward to allow for any slight variation in cement work.

The Brace Rod: Divisions are connected together in groups, by means of a Brace Rod (see page 128). This Brace Rod is made out of 1 1/16″ O. D. Steel Tubing and is rigidly attached by a Certified Malleable Iron Connection to the reinforcing iron of each Division. Brace Rod makes it possible to raise and lower as many as five Divisions at a time instead of just one at a time. It also serves as a guard to prevent cows from tossing feed over into the feed alley way.

The Springs: Divisions are raised for cleaning the manger by means of Special Coil Springs. Springs are made out of 1/4 inch steel spring rod—the best that can be procured. They have a working strength of around 400 pounds. Three Springs are furnished with a section of 5 Divisions, 2 with a section of 4 Divisions and 2 with a section of 3. Design of Springs and Clevis are such that the Divisions are automatically held in either raised or lowered position.

The Finish: The sheet steel out of which the Divisions are made is galvanized, and then the whole is coated with our Special Dairy Barn Aluminum. If the fittings are to be galvanized, there will be an extra charge for this extra operation.

Louden Spring Balance Manger Division complete consists of 1 Galvanized Division of the size specified; sufficient 1 1/16″ O. D. Tubular Steel Brace Rod to connect the Divisions into groups; 1 Brace Rod Connection for each Division; 1 Double Hinge and Double Pivot Clamp for each Division, where they are fastened onto single or central post stalls. With the Louden Double Post Stall, 1 Pivot Pin and 2 Grip Clamps to attach the Pivot Pin to the stall posts, are used in place of the Double Pivot Clamp. *In ordering specify the size of posts.*

The Spring Outfit: Each Spring Outfit consists of 1 special Coil Spring, 1 Clevis and 1 Certified Malleable Iron Holder for the Spring. Sufficient Spring outfits are furnished with each order of Divisions.

Weights: With hinges and their connections complete, as specified are as follows; No. 3 Division approximately 18 1/2 pounds; No. 4 Division about 20 pounds. The weight of each Spring and the Equipment that goes with it is about 4 pounds.

Louden Spring Balance Manger Divisions—Continued

The first purpose of a Manger Division is to partition the concrete feeding trough off into separate compartments—to make it possible to feed each cow individually and to make it *impossible* for one cow to steal the feed of an adjoining cow. Therefore, the Division that is not large enough to prevent cows with a long reach, or cows that are crafty in overcoming obstacles, from reaching over it, is not capable of doing all that it is supposed to do. There are usually at least a few such cows in every herd, hence, the Louden Spring Balance Division was designed and built with these and many other factors in mind—that it might do its work efficiently at all times, under all conditions and with all types of cows.

The Louden Spring Balance Division is 24 inches high—a proper height to keep any cow within her own compartment. It extends out in front of the stall as much as 34 inches. This makes possible a concrete trough big enough to prevent feed waste and at the same time one that has the correct slope to bring the feed down close to the cow's nose, so that she may be able to reach it without stretching or straining.

When cleaning the manger is desired, the job can be done almost as quickly and easily as where no Divisions are used for as many as five Louden Divisions may be raised in a group, instead of just one at a time. Compare this operation with that of any other Manger Division made—it's an exclusive feature that enables you to keep your mangers sanitary and clean with the least amount of effort and time. It *is* a Louden feature covered by Louden Patents.

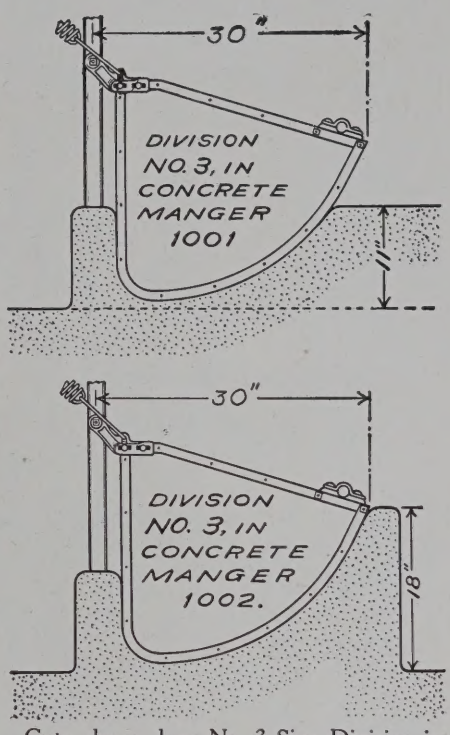
See how substantially and durably the Louden Spring Balance Division is built. The sheet that forms it is made out of heavy galvanized steel and is entirely reinforced around the edges by means of one continuous length of 1″ x 1″ x ⅛″ T Steel Bar. Each Division is further strengthened against any side strain by the Steel Brace Rod which is rigidly clamped to the outer portion—the part of the Division farthest away from the hinge.

The Hinge is Certified Malleable Iron—a metal of the highest quality—that is tough, strong and very lasting. It is so constructed that it firmly grips over and around the T steel Binding, and the pivot end turns on two bearing points when the Division is raised or lowered. Thus, the Division is exceedingly substantial and solid at the hinge point as well as all other points. In addition, the hinge and the spring outfit are designed in such a manner that the Divisions are automatically held in *either* up or down position.

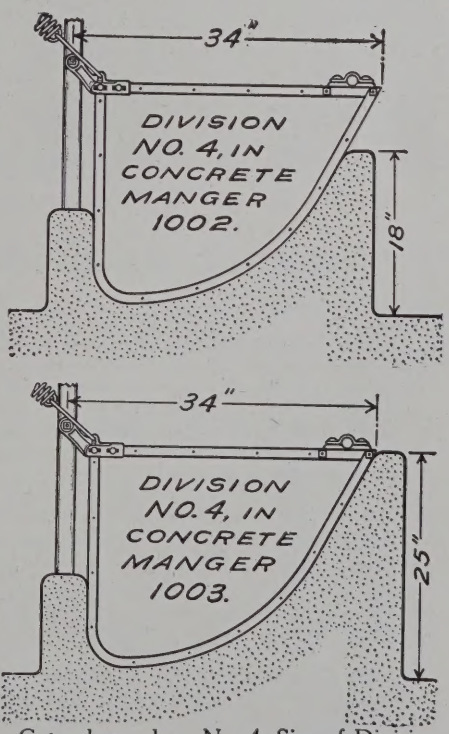
Each Louden Spring Balance Division may be adjusted forward or backward after it is installed, to allow for any little irregularity or variation that might occur in building the concrete manger. This is a valuable feature, for with the ordinary Division, if the cement work isn't perfectly true—the result is a poor fit.

Consider the Louden Spring Balance Manger Division from every possible angle—its size; the heavy, quality materials used and the manner in which it is strongly made throughout; the perfect ease with which a number of Divisions can be raised and lowered at a time; the proper shape of the concrete manger used with it; the accurate fit made possible where the manger trough is rough or uneven and its many other outstanding construction features—then you will realize why thousands of other dairymen who are using it today say the Louden Spring Balance Division is the most practical all-around Manger Division ever built.

You can depend on the Spring Balance Division in every emergency.



Cuts above show No. 3 Size Division in the two different sizes of Mangers it fits.



Cuts above show No. 4 Size of Division in the two different sizes of Mangers it fits. See description of mangers on page 135.

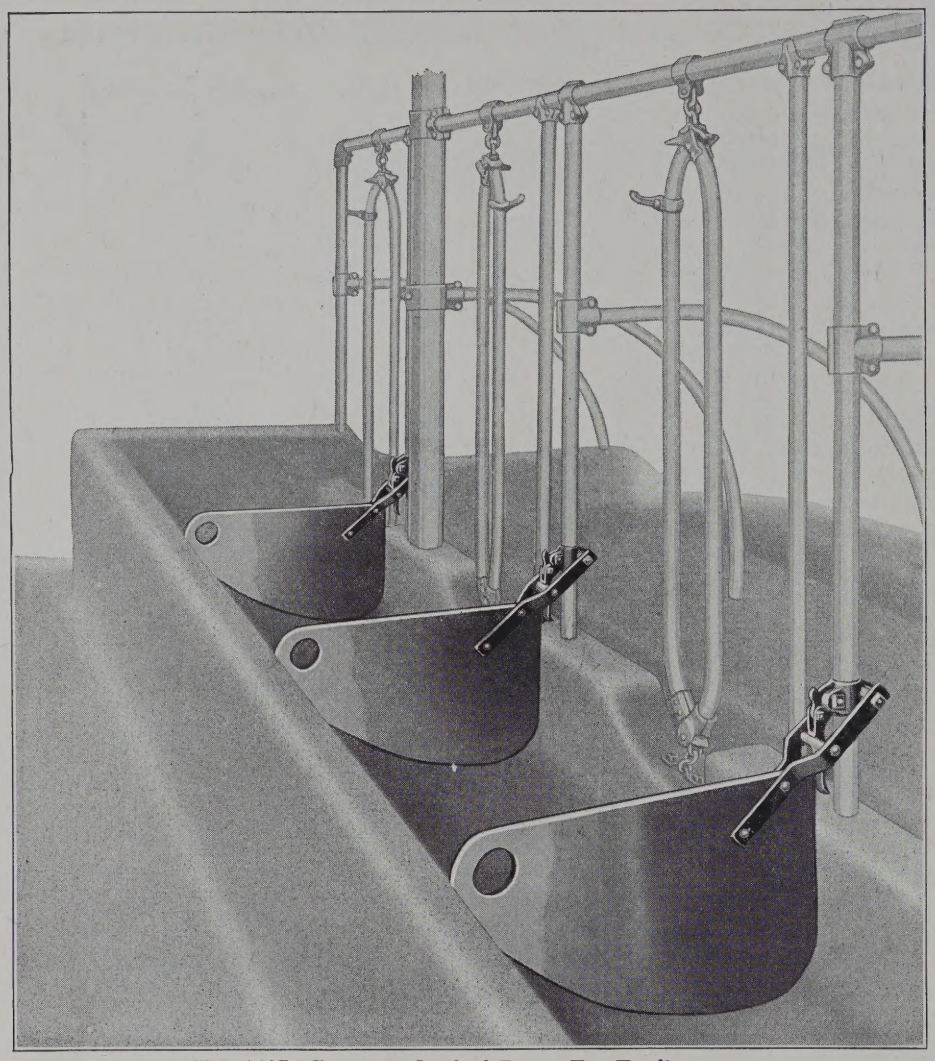
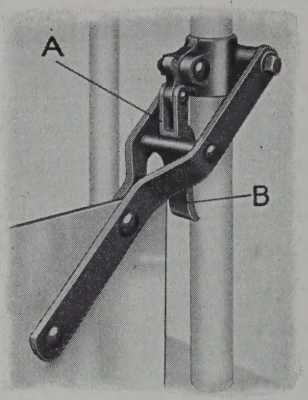
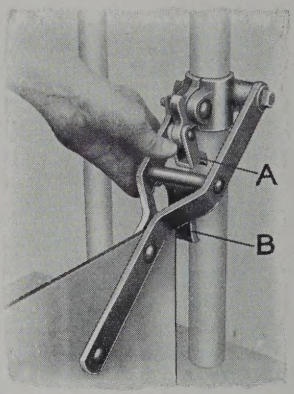


Fig. 1407—Divisions Locked Down For Feeding.



Cut 1409—Showing Louden Individually Operated Division in the down position. It is automatically locked and securely held down by holder A.



Cut 1410—Releasing Louden Individually Operated Division for raising. Holder A is disengaged by a touch of the thumb and the Division is quickly and easily swung up.

Louden Individually Operated Manger Divisions

Specifications

Size: Louden Individually Operated Manger Divisions are 14 inches high and project out in front of stall 27 inches. While not quite as large as the Louden Spring Balance Division shown on preceding pages, it is nevertheless so designed that it is very practical and efficient in preventing cows from reaching over and stealing feed from in front of neighboring cows. Likewise, the Divisions are built to fit mangers having the correct slope so that the cow may eat without having to stretch or strain. See page 135.

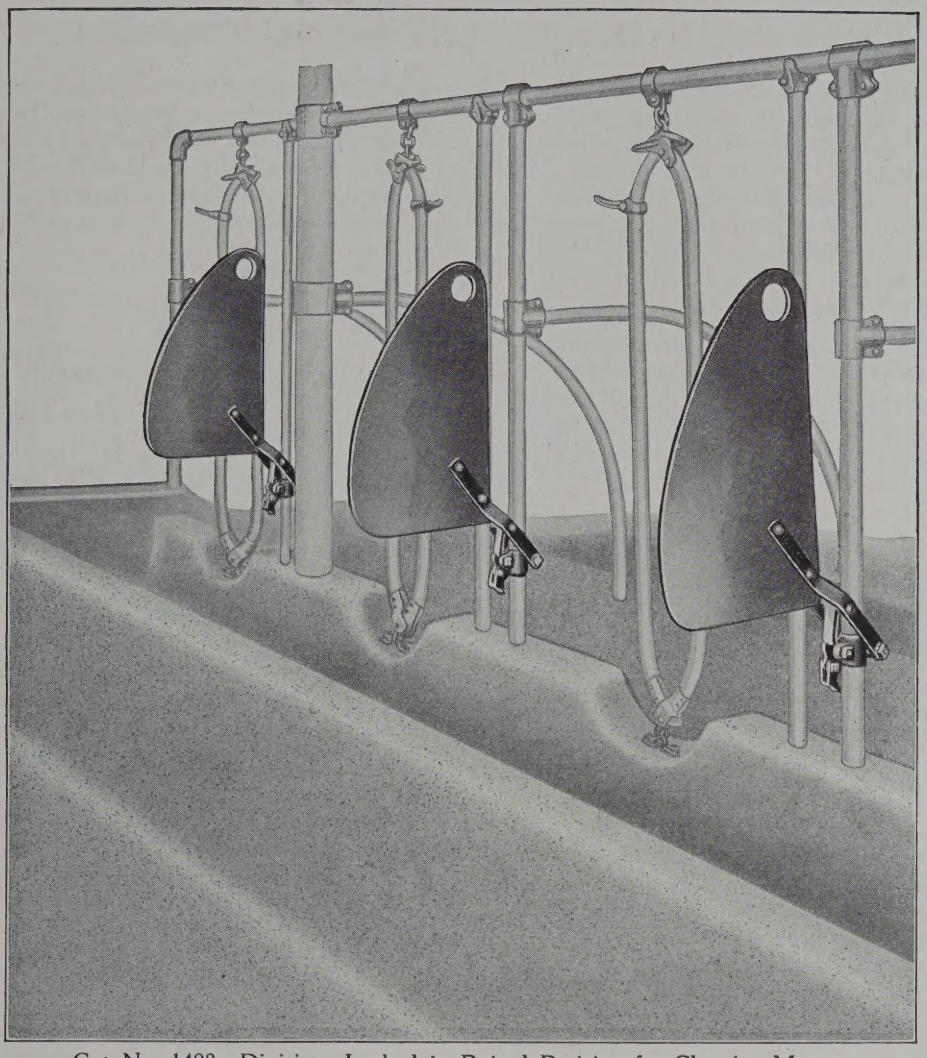
Adjustable Feature: Each Individually Operated Division may be adjusted forward on the hinge ½ inch or backward ½ inch—making it possible to fit stalls erected with manger curbs varying from 4 to 6 inches in width. This also makes possible a tight fit even though the manger be rough or uneven.

How Operated: The Individually Operated Division automatically locks in both down and up positions. A touch of the trigger with the finger releases the lock instantly in either case. Division is correctly balanced to afford easy operation and a hole 2½ inches in diameter at the outer end, provides a comfortable hand hold for raising and lowering.

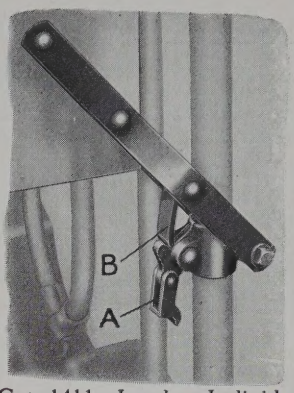
The Material: Heavy No. 11 gauge Steel Plate is used in the construction of the Individually Operated Division. This heavy steel in a Division of this size, makes it exceptionally stiff, rigid and very substantial throughout. The connecting Iron or Hinge, is made out of two pieces of ¼"x1¼" bar steel. This pair of hinge irons extends down diagonally on each side of the Division 8 inches and is securely fastened to it by means of two heavy bolts. The opposite end of the hinge forms a U and by pivoting on both sides of the stall post, has two bearing points. Thus the entire Hinge is *exceptionally* solid and strong. The Pivot Connection that attaches to the stall post and the Automatic Lock, are both made out of Certified Malleable Iron.

The Louden Individually Operated Division includes: 1 Division; 1 Complete Hinge, with Automatic Lock to hold Division both up and down and 1 Certified Malleable Pivot Connection.

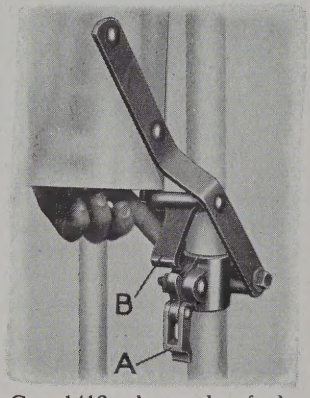
Weight: as above specified, 15 pounds; with extra 1⅝" post 3 ft. 8 in. long and 1 Two-Way Clamp necessary for placing Division on Center of Fig. 812 Stall (see cut No. 1414 page 134), weight is about 25 pounds.



Cut No. 1408—Divisions Locked in Raised Position for Cleaning Manger.



Cut 1411—Louden Individually Operated Division in raised position. Note Holder B which automatically engages and holds the Division solidly in place when it is up.



Cut 1412—A touch of the finger disengages Holder B and the Division is instantly lowered to again automatically lock down for feeding. Simple–Effective–Cow proof.

Individually Operated Manger Divisions—Continued

As the name implies—Louden Individually Operated Manger Divisions are raised and lowered one at a time, instead of in groups, as is the case with the Louden Spring Balance Division shown on preceding pages. Thus in cleaning the manger, the method of swinging the Divisions up out of the way is the principal difference between the two types.

Although the Individually Operated Division is slightly smaller than the Louden Spring Balance Division, it is nevertheless so designed that it absolutely prevents the cow from reaching over and stealing her neighbor's feed. In addition, it fits the same properly sloped concrete manger that brings the feed down close to the cow's nose—that enables her to eat in solid comfort without stretching or straining.

The Louden Individually Operated Division does however differ very distinctly from the ordinary Division operated singly, in that it automatically locks in *both* down and up positions. Locked in raised position, it makes possible full convenience in cleaning the manger. Locked in lowered position it assures individual feeding, for the cow in her effort to get to the feed in the adjoining manger cannot nose the Division up and thereby reach under it. Locked in a raised position only, is not enough—the provision for holding the Division down, is even more important, for it guarantees keeping the cow from manipulating it and getting feed that is not meant for her—the very thing you install a Division to overcome. The Lock is cow proof but even so, it is so ingeniously worked out that a touch of the finger releases the Division instantly for operation. This little locking device is simple, effective and absolutely trouble-proof—it is a necessary feature of any Division that is raised and lowered singly.

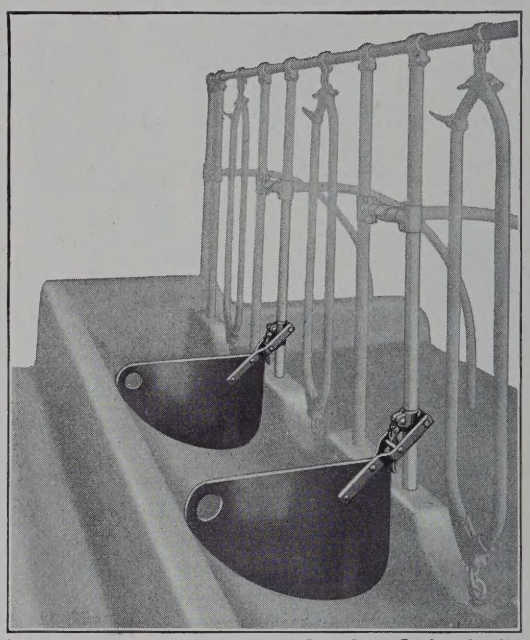
Individually Operated Manger Divisions—Continued

The strong, heavy, durable materials used in the Louden Individually Operated Division and the thorough way in which these high quality materials are firmly put together is ample evidence that the Division is made to withstand hard usage—to last for years. The Division proper, is a steel plate 1/8 inch in thickness. The Hinge is formed by two pieces of 1/4"x1 1/4" bar steel, and stiffens and braces the Division by extending diagonally down on each side of the steel plate—a distance of 8 inches. The rear end of the hinge is U-Shaped and pivots on both sides of the stall post—thus it has two bearing points that keep the Division from racking or twisting under severe strain. The Pivot Connection and the Automatic Lock are both Certified Malleable Iron—the mark of superior metal.

Another feature included in the Louden Individually Operated Division, not common to ordinary Divisions of this type, is the provision made for adjusting either ahead or back. This makes it possible to fit stalls erected with manger curbs varying from 4 to 6 inches in width and further, it assures a snug fit in mangers where the concrete work is uneven.

The Louden Individually Operated Manger Division is quickly and easily installed—simply clamp the pivot connection on to the stall post and bolt the Hinge to it—a wrench is the only tool needed and the job only requires a few moments time. In addition the Division is so well proportioned and formed that it is both neat and attractive.

Because it is operated singly and because it is smaller, the Individually Operated Division requires less material and is consequently somewhat lower in cost than the Louden Spring Balance Division but regardless of which type you choose, they will make it possible for you to feed your cows individually and thus prevent overfeeding and underfeeding. They will do away with the necessity of the cows stretching and straining for feed and the possibility of injury that goes with it. With them your cows will stand in a natural position while eating, droppings will fall in the gutter and hence a great deal of the work formerly required in keeping the platform clean, the cows clean and the milk clean, will be eliminated. They will save you feed. They will mean more contented cows. And by producing such results, Louden Divisions will pay mighty big dividends each year on their original cost.

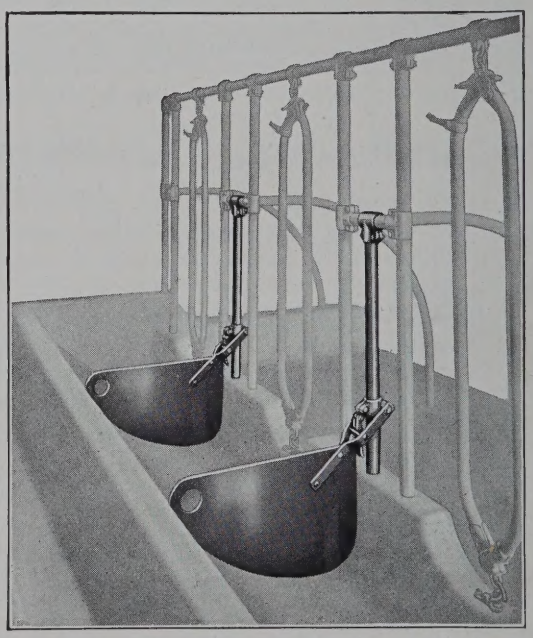


Cut No. 1413—Showing Louden Individually Operated Divisions attached to the Louden Fig. 812 Stall without extra equipment.

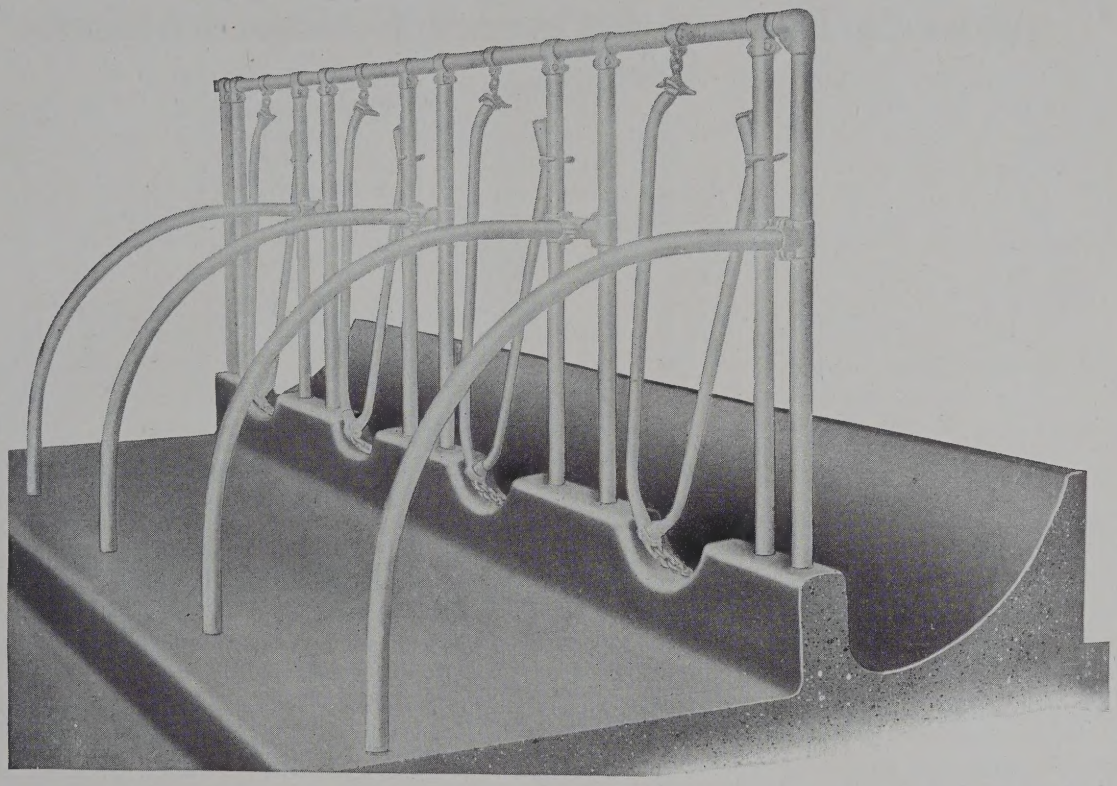
Two Methods of Attaching Divisions to Fig. 812 Stalls

The Louden Individually Operated Division is regularly attached to the Louden Fig. 812 Stall as shown in cut No. 1413. While this places the Division a little to one side of the stall center, it is nevertheless just as effective in preventing the cow from reaching the feed in front of the adjoining cow on either side and can be installed at a minimum cost.

However, if it is desired to have the Division located midway between stanchions on the Louden Fig. 812 Stall, it can be attached as shown in cut No. 1414. In this case the complete equipment includes an additional piece of 1 5/8" O.D. steel tubing 3 ft. 8 in. long and an extra clamp to attach its upper end to the cross brace of the stall. This naturally makes the cost of the Division a little greater. While this method of erecting adds nothing to the effectiveness of the Division—it does make the stalls and Divisions perfectly symmetrical.



Cut No. 1414—Showing Louden Individually Operated Manger Divisions with extra equipment for installing on center of the Louden Fig. 812 Stall.



The Correct Concrete Manger — How to Build It

One of the most important things in the construction of cow stalls is to make the manger the proper size and shape to suit various requirements of the different kinds of cows and the different methods of feeding, and at the same time have them *standardized* so any needed metal work can be readily made to fit the manger. Heretofore there has been no recognized standard. Mangers have been built in almost every conceivable shape and style to suit the fancy, and without any effort to secure uniformity.

Louden Standardized Mangers have been devised to overcome the troubles resulting from this lack of uniformity. The designs presented are on *correct scientific lines*, and are believed to be the most complete ever offered. While substantially uniform in all their curves and lines they are readily adapted to be made different sizes to suit different types of cows and different methods of feeding.

The standard manger curb is made 5 inches thick and 11 inches high above the stall floor—10 inches above the lowest part of the manger bottom (5 inches higher than usual) and the *corners are rounded* so they cannot in any way injure the cow. Where the stanchion is anchored the curb has a semi-circular *depression* 5 inches deep and 16 inches wide at the top, which also has rounded corners. Hence the curb under the stanchion is 6 inches high, thus it gives the *cow perfect freedom* as well as *ample throat room* when lying with her head low down, and because the curb is 11 inches high on either side it prevents the cow from tossing her feed back onto the standing platform. The side of the manger next the curb instead of having the usual sharp corner which prevents the cow from cleaning up her feed and furnishing a place to catch and hold dirt, has a four-inch radius which *fits the cow's nose* nicely and makes it easy to keep the manger clean. The other side has a radius of 24 inches, centered from the same perpendicular line, which makes the lowest part of the manger within 5 inches of the curb. The far side of the manger raises on a gradual curve so the feed naturally *rolls down toward the cow.*

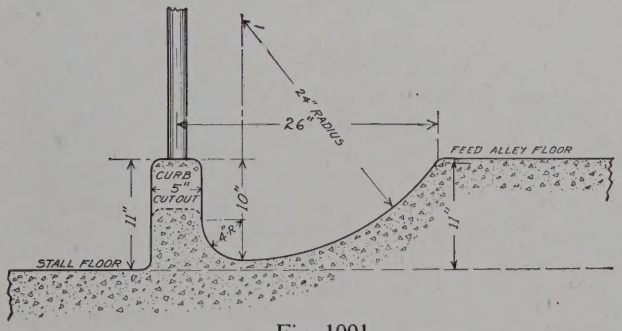


Fig. 1001
Louden Low Cement Manger, With Raised Feed Alley Floor

How to Build the Correct Concrete Manger

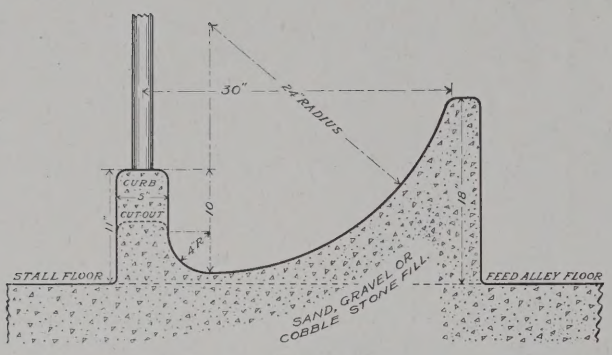


Fig. 1002
Louden High Cement Manger.

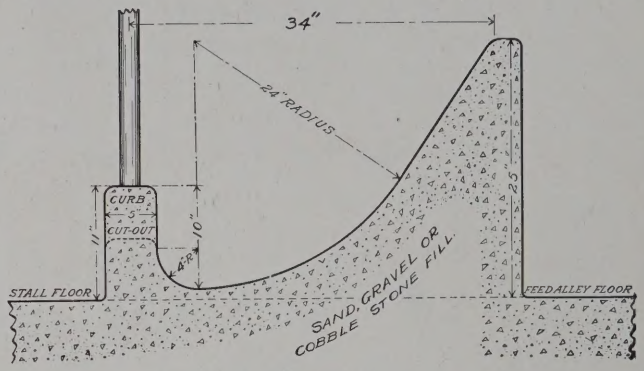


Fig. 1003
Louden Extra High Cement Manger.

With the Louden Patented *Cut-out Form*, Fig. 970, page 137, the *High-Built-Up* feed saving Manger Curb is constructed as easily as the low level curb and there is absolutely no question about it being a better all around more efficient curb. It is in reality the Low Level Curb ordinarily used with *5 inches additional height* added at the sides of the stanchion anchorage, to save feed waste.

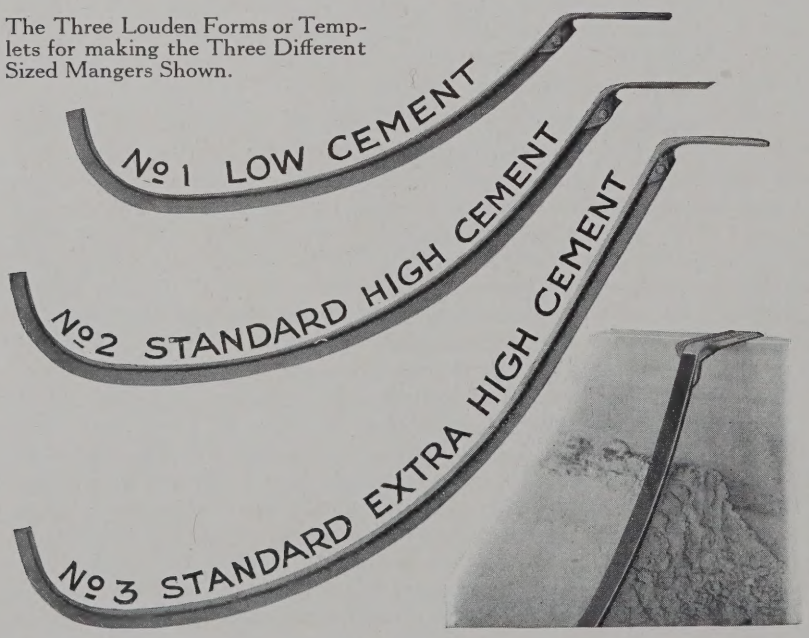
There are no cracks or crevices or pockets anywhere in Louden mangers to catch and hold dirt and form breeding places for disease germs. *Beware of "dirt catchers" in your mangers.*

Sizes of Mangers. These mangers are made in three different sizes varying from 26 to 34 inches in width and the outside edge of the manger from 11 to 25 inches high.

Fig. 1001 shown on preceding page, is a cross-section view of our *Low Cement Manger* (radii 4 inches and 24 inches), with Raised Feed Alley Floor—a style well adapted for common use. Fig. 1002 is our *High Cement Manger*, (radii 4 inches and 24 inches). Fig. 1003 is our *Extra High Cement Manger*, (radii 4 inches and 24 inches). These sizes are well adapted for all cows.

These Standardized Mangers and our improved methods of constructing them, are everywhere conceded to be the greatest improvements recently made in Dairy Barn Equipments. These improvements are so much ahead of former designs and methods that they mark *a distinct epoch* in the development of dairy equipments. Leading dairymen everywhere approve our Standardized Mangers and Agricultural Colleges in this and other countries have adopted our directions for the instruction of their classes.

The Three Louden Forms or Templets for making the Three Different Sized Mangers Shown.



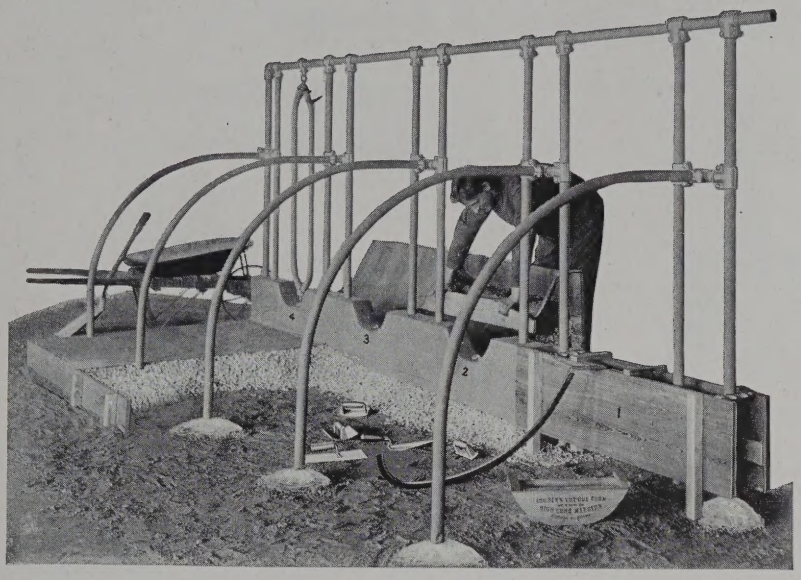
Forms for Building Correct Mangers

No other device has ever been made that will begin to compare with the Louden Form or Templet as it is sometimes called, for ease and rapidity in the construction of cement mangers, as well as for the excellence of the work.

The cuts show the three different sizes of Manger Forms or Templets which we furnish for building the three different sizes of mangers described on this and preceding page. A view is also shown of the upper end of the Form or Templet resting on the form board and part of the cement in place.

No. 1 Form is for Fig. 1001 Manger; No. 2 Form for Fig. 1002 Manger and No. 3 Form for Fig. 1003 Manger. At least three templets should be used on the average size job.

How to Build the Correct Concrete Manger



Cut No. 1155

Cut No. 1155 shows the different steps in the construction of Louden Standardized Concrete Mangers. 1st, the stalls are set up and *lined up as true as line and level can make them.* 2nd, the form-boards for the curb are set up to *correspond with the stalls* and the cement is then put in, using our patent cut-out forms to make the depressions in the curb under the stanchions. 3rd, the curb form-boards are removed, the corners of the curb are rounded and the form-boards for the manger are set up. 4th, the forms or templets for the manger are set in place and the cement is then put in. 5th, after the cement has set sufficiently, the templets and formboards are removed and the manger is smoothed up. After this the stall floors, the gutters, and the litter and feed alley floors are constructed in the order most convenient. We furnish *Complete Detailed Instructions* for doing the work — thus the job is made simple, easy and quick and a fine installation is assured. Also, the necessary Tools and Appliances can be obtained from us at a nominal cost. (See page 138).

Some parties advise putting in the concrete work first and setting up the stalls afterwards, connecting the stall posts and partitions to the curbs and floors by means of anchors set in the concrete. We do not recommend the anchoring of stalls in this manner if it is possible to install them in the usual manner, with stall posts securely embedded in the concrete.

It is next to impossible to get a first class job when separate anchors are used. No matter how careful the concrete worker may be he cannot set the anchors accurately so that the stalls line up properly, and some will have to be sprung into line and held by the top rail and stall partitions. The stalls will not be as strong as those set in solid concrete, and the anchors offer a place for the accumulation of dirt.

Nevertheless we manufacture anchors and can furnish the equipment either to be erected on such, or set in the concrete. However, for real permanence, durability, cleanliness and a perfect all-around installation we strongly recommend placing the stall posts in solid concrete 15 inches as above described. Erected in this way your future troubles are eliminated—long years of hard, steady service is assured.

Forms for Building the Curb

The Louden Cut-Out Form shown by Fig. 970, is simply set in between the curb form boards where the stanchion depressions should come in the high built-up curb, thereby doing away with all wasteful cutting of form board lumber and insuring stanchion depressions of uniform size and shape. It also holds the U-bolt to which the stanchion is later connected, exactly in place while the concrete is slushed in around it. With this form you will find building the high built-up curb just as easy and simple as building the low level feed wasting curb. Cut shows one of the large sherardized U-Bolt lower stanchion fasteners connected to the form.

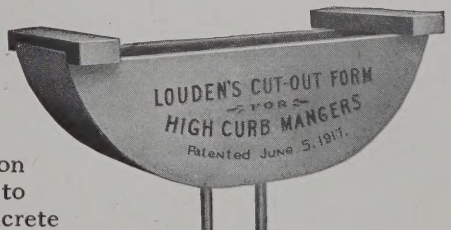


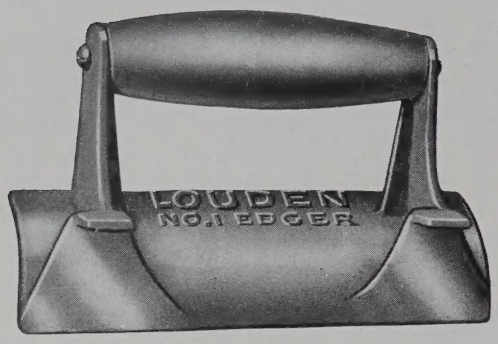
Fig. 970
Built-Up Curb Form.

There should be 4 to 6 forms for each installation according to the size of the barn and the speed required in doing the work.

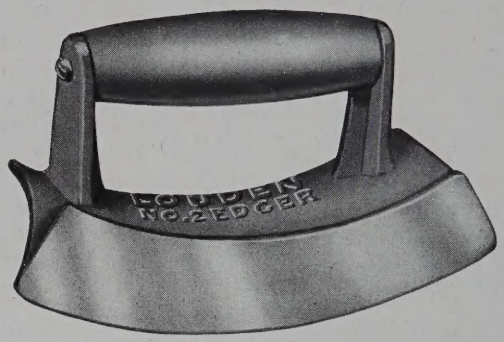
Fig. 1074 is a top view of our *Curb Gauge*, by means of which the form-boards for the curb will be held the proper distance apart, and equal distances from the stall posts. No measuring or cutting of boards is required. There should be 8 to 12 gauges for each installment.

Fig. 1074

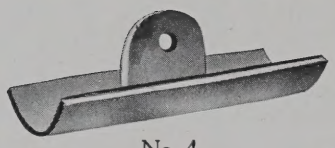
Handy Cement Working Tools for Building The Correct Concrete Manger



No. 1 Edger

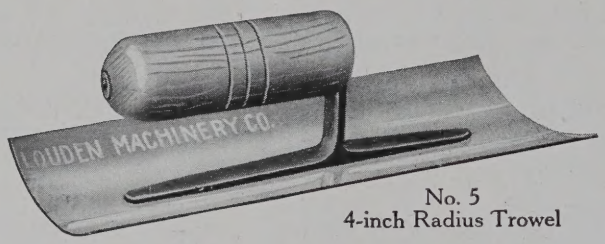


No. 2 Edger

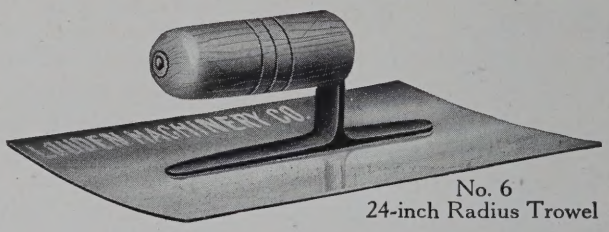


No. 4

No. 1 is our Straight Edger for rounding off the upper edge of the manger curbs, also the sharp edge of the gutter. **No. 2** is our Curved Edger for rounding off the edges of the cut-out in the curb and other curved works. **No. 4** is a small tool to round out and smooth up the corners between the curbs and the stall floor. Also the corners between the manger and the feed alley floor and any similar corners liable to catch and hold dirt.

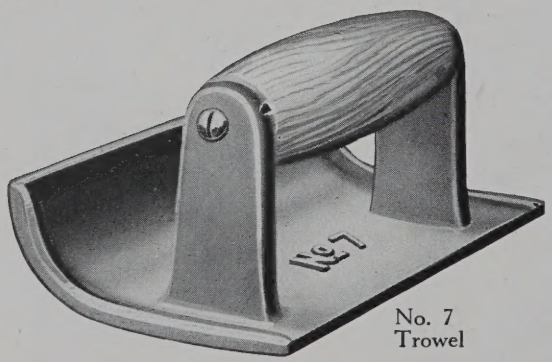


No. 5
4-inch Radius Trowel



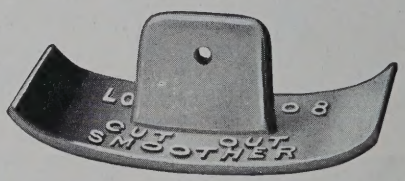
No. 6
24-inch Radius Trowel

No. 5 is our 4-inch radius Steel Trowel for rounding out and smoothing the corner of the manger next the curb. **No. 6** is our 24-inch radius Steel Trowel for smoothing the bottom of the manger. The blades of these trowels are of the finest steel and they are light and easy to handle. No one can afford to be without a supply of these tools in doing the cement work in a dairy barn or other buildings about the place.



No. 7
Trowel

No. 7 is our 1¼ inch Radius Trowel for making the fillets where the manger curb joins the stall floor. Because of the flat portion of this tool which rests on the stall floor, fillet will always be uniformly made.



No. 8
Cut-Out Smoother

No. 8 is our Cut-Out smoother. Just the right shape to finish up the curved portions of the Cut-Out. Will not only do the work much nicer but will also require less time.

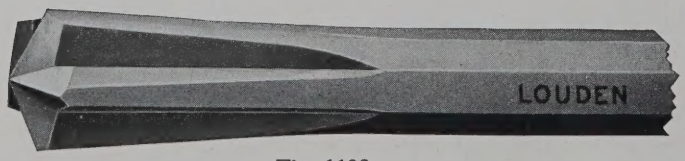


Fig. 1192

Star Drills. For drilling holes in brick, stone or concrete. We carry only the sizes necessary for the anchor shields we use and only in one length. Other sizes and lengths will be furnished on application.

Sizes—½ x 8 inches, ⅝ x 8 inches, ¾ x 8 inches, and ⅞ x 8 inches.

The Louden Improved Anchor for Connecting Stalls to Concrete Work

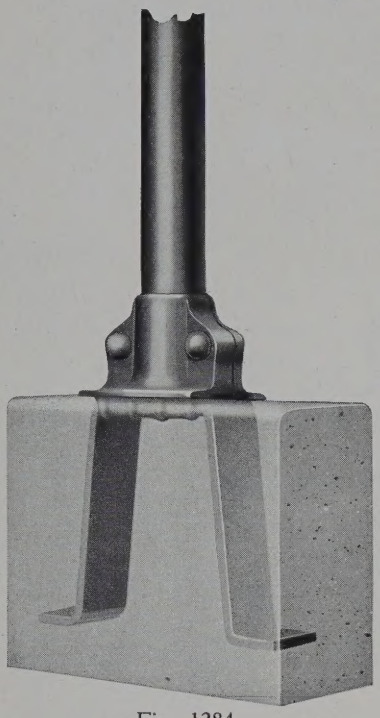


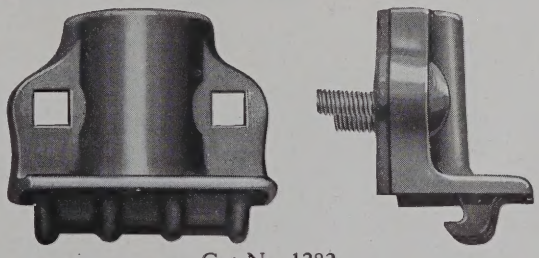
Fig. 1284
Stall Post connected to Anchor Embedded In Cement.

Experience has shown that the use of Anchor Irons is absolutely impractical and unsatisfactory for fastening the back end of the stall partition to the cement floor. The partition thus fastened is apt to become wobbly and insecure under the severe strain that it is called upon to withstand. Further, since no form boards are required for building the cement work at the point where the partitions come, there is nothing to hold or stay the Anchors, hence it is an exceedingly difficult job to set them accurate enough so that the partitions will exactly fit over and attach to them when installed later on. In addition the Partition Anchor offers a place for filth and dirt to collect.

Even those who still advocate the use of Anchor Irons for erecting other parts of the stall recommend running the partition down into solid cement. This means that the cement work for the standing platform—which constitutes a good big portion of all the cement work—must be put in after the stalls are set up even though Anchors are used for connecting the stall posts.

Thus, although the manger curb with Anchors embedded in it, may be built in advance, the cement work cannot be entirely completed until the shipment of stalls arrives. Hence, even if there were a slight saving in time in setting the stall posts due to the curb Anchors having previously been installed—this saving is more than offset by the inconvenience, the bother and the trouble of getting every thing together for a second hitch at the cement work which is necessary after the partitions have been placed.

At best, Anchors are tedious and hard to set—working cement in around them quite often pushes them out of plumb—later when the uprights are connected they too are out of plumb and it is very difficult to spring them in at the top for fastening to the horizontal stall rail. In such cases the stalls do not line up as well nor are they anywhere near as substantial as when all of the posts extend down into a solid cement footing.



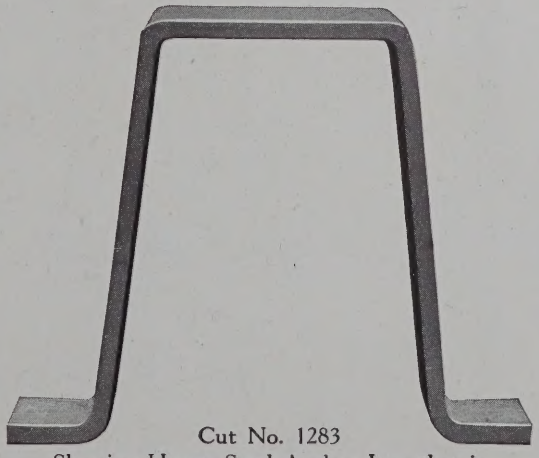
Cut No. 1282
Front and Side of Certified Malleable Connection that clamps on Anchor Iron and Bolts to Stall Post, Firmly Holding Post In Place.

Nevertheless, there are circumstances once in awhile that make the use of Anchors necessary and for such cases the Louden Improved Stall Anchor, shown on this page, provides the simplest, most secure anchorage possible to obtain with this method of installation.

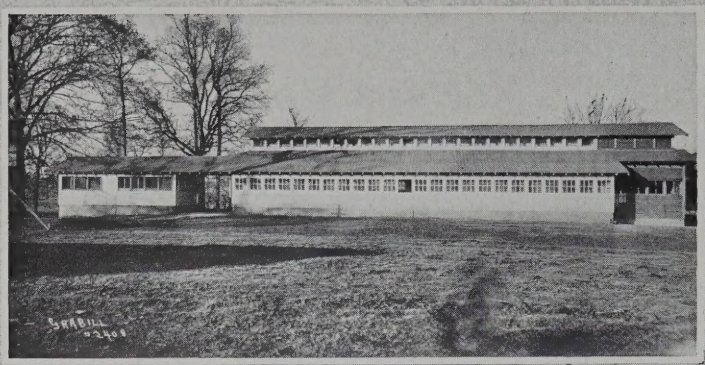
The Louden Anchor is the strongest and heaviest made. It is the only Anchor that is made as strong as the pipe it supports. The lower part of the Anchor is made of heavy bar steel. It is 3¾ inches wide at the top and 7¼ inches wide at bottom, flared to insure a permanent hold in the cement.

The stall post is secured to the Anchor by means of overlapping, dustproof, Certified Malleable Castings, *clamped on*. There are no bolts through the Anchor to break off or weaken the connection. A heavily ribbed hook or flange three inches in length grips the Anchor iron securely on each side, making a connection that is almost unbreakable.

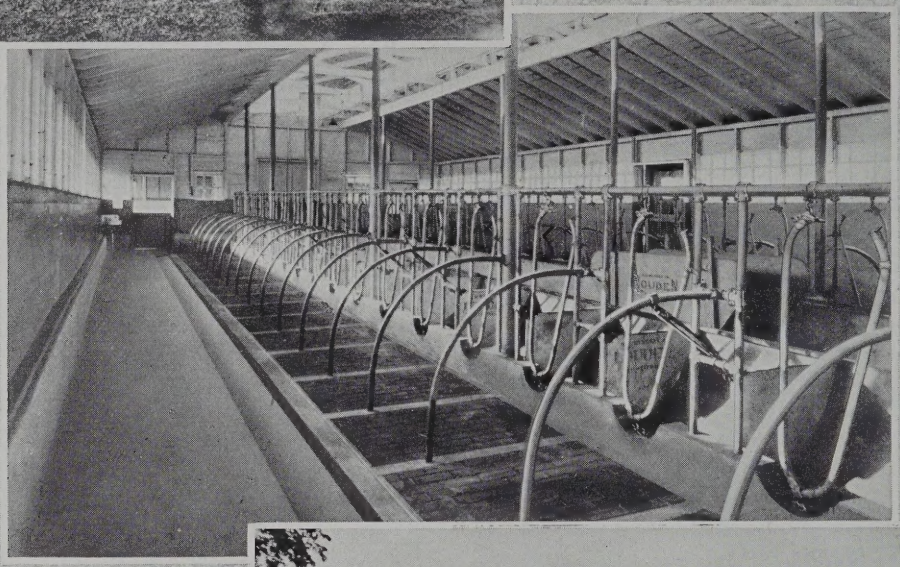
Fig. 1284 shows the parts clamped to the Anchor Iron; also a short section of the stall post. The top of the Anchor Iron is set flush with the top of the curb, and the broad flanged base of the Connection rests flat on the concrete.



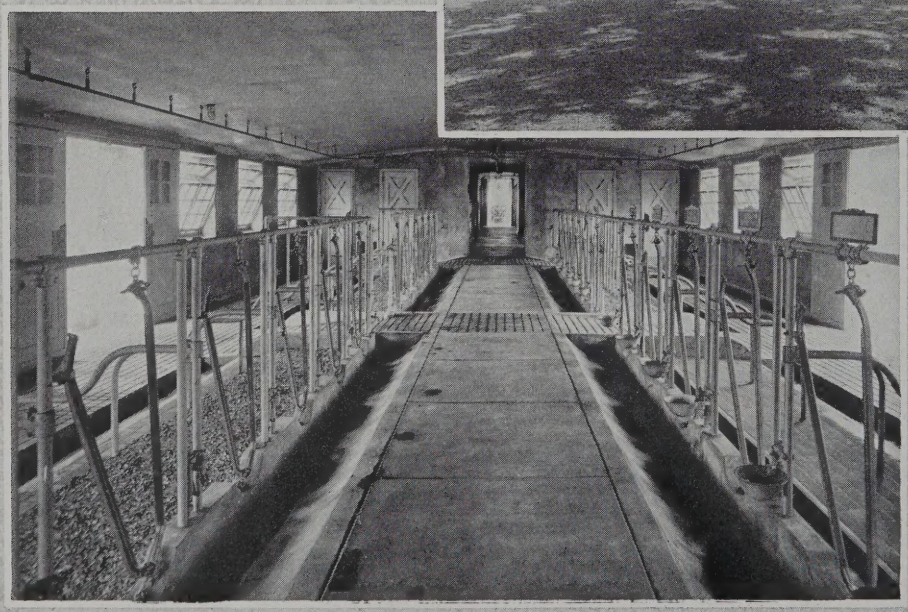
Cut No. 1283
Showing Heavy Steel Anchor Iron that is embedded in the cement.



A Type of Dairy Barn
Particularly well adapted
for warmer climates
Bent Oaks Farm,
T. C. Barret, Owner,
Greenwood, Louisiana



Interior of Barret barn showing Louden Equipment—Clean, Sanitary Conditions—Explaining why Bent Oaks milk products are in great demand



One of the Most Elaborate Barns in the Country
P. B. Weidner, Owner,
Chestnut Hill, Pa.

A Corner inside the Weidner Barn illustrating the Louden Stalls with High Built-Up Feed Saving Curb —Water Bowls—Name Plates, etc.

Louden Name Plates and Name Plate Holders

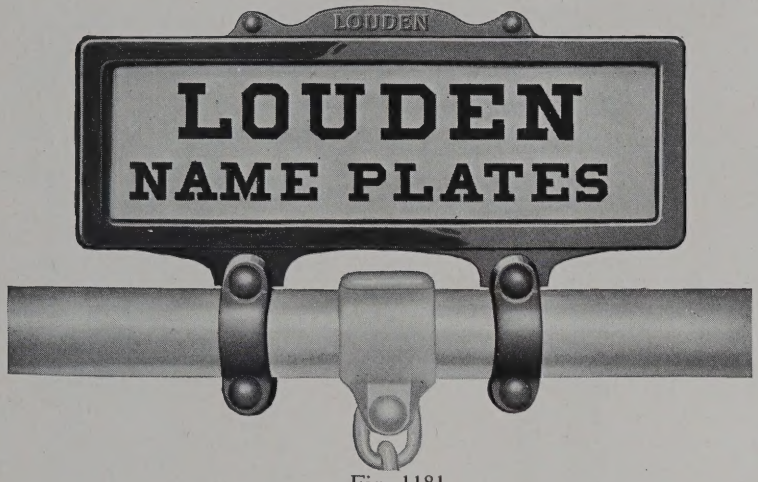


Fig. 1181

The presence of the Louden Name Plate on cow stalls and pens, not only adds a neat finishing touch to the interior of any barn, but also identifies the cows in a manner that bespeaks the owner's consideration and high appreciation of their value. There is no doubt that buyers or patrons visiting your barn will be influenced more or less by the neat and attractive Name Plates.

Fig. 1181 is the Louden Improved Name Plate Holder mounted on the top rail of a stall or pen. It is provided with two sheets of isinglass each 4⅛ x 12½ inches between which the name plate or card is inserted. The heavy white name plate card is also furnished as a part of each Holder. Or if preferred a black steel plate on which a slate pencil record can be kept daily may be used instead of the name card. With this latter arrangement, the isinglass should be left out so as to afford easy access to the slate when writing on it is necessary.

All Name Plates are nicely finished up with our "Silver Gray" enamel baked on. For the slight additional cost, you cannot afford to do without the Louden Name Plate Holder in your barn.

Each Name Plate Holder complete weighs 3 pounds. Holders are made for either 1⅝ or 1⅞ inch top rail. *Be sure to specify size.*

Cork Brick Makes a Good Floor

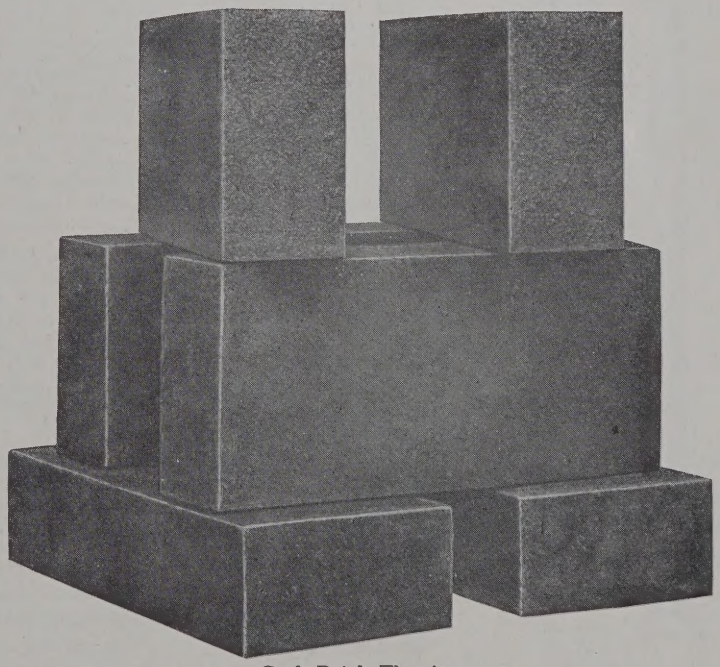
To find a good floor for cow stalls, calf and bull pens, piggeries, etc., is one of the big problems that the average dairyman and stock raiser in general has had to contend with in the past.

Concrete is easy to keep clean but by many is claimed to be injurious to stock that have to stand or lie on its cold, hard surface.

Wood is warm enough and easy on the feet, but is not sanitary—it soon gets foul and rots out.

Cork brick embodies all of the good and eliminates all of the bad qualities of both wood and cement. They are the ideal floor for any kind of a pen or stall because they are thoroughly sanitary, warm to the touch, easy to stand on, noiseless, never slippery, wet or dry—very durable and easy to install.

Cork brick is made out of finely granulated cork and refined asphalt, heated and thoroughly mixed, then moulded under pressure into brick form 9 inches by 4 inches by 2 inches and are laid flat. Four will cover exactly one square foot of surface.

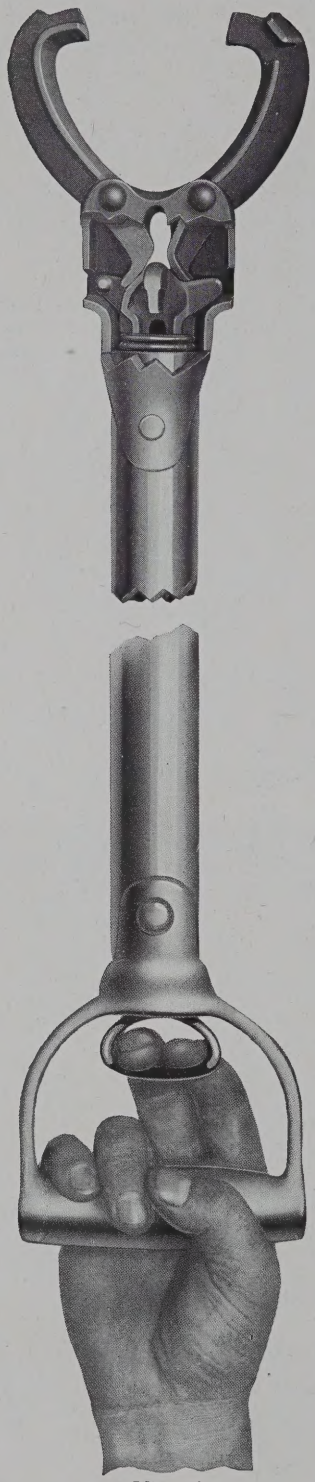


Cork Brick Flooring

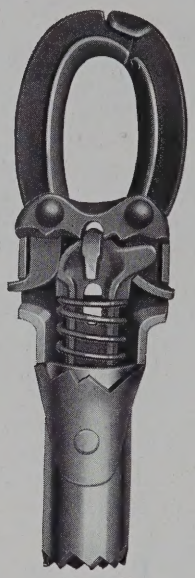
Let us give you full details regarding the advantages of cork brick as well as the different methods in which they may be installed. All of this is very interestingly told in our booklet "Cork Brick Floors" which we will gladly send you. Weight of cork brick, 2½ pounds each.

The Louden Bull Staff — Fig. 1436

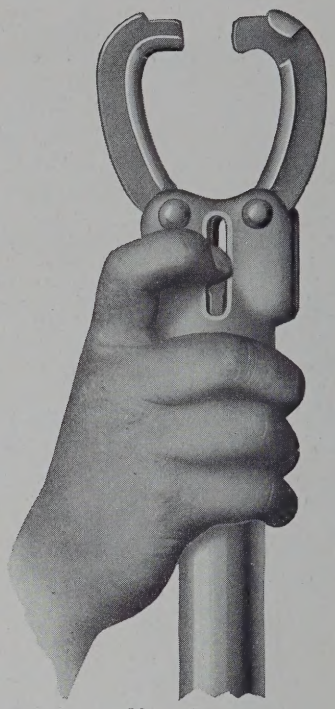
Fig. 1436
Bull
Staff



View A
Main Shaft is made out of Special Hard Drawn Aluminum—exceptionally strong but exceedingly light and easy to handle. View also shows Staff being opened from Handle End.



View B
Heavy Certified Malleable Iron Castings hold the lock firmly closed at all times. It's locked to stay until released by the operator. View shows the head cut away.



View C
Staff may be opened at Grab End as well as Handle End—by attendant but not by bull.

Specifications

Operation: The Louden Staff grabs the bull ring instead of hooking into it. It grabs the ring from any angle, hence it eliminates much of the annoyance and trouble of the old fashioned hook of trying to get back of the ring. The Louden Staff is automatically locked by a heavy strong spring, and is held locked by heavy Certified Malleable Iron Castings. Staff can be unlocked from either Handle End or Grab End—by the attendant but under no circumstances can it be released by the bull.

Material: A heavy steel rod connects the handle release with the grab hooks. Grab Hooks, Locking Mechanism and Handle portion are all made out of Certified Malleable Iron—the highest quality of Malleable Iron obtainable. *Main tube of Staff is made out of Special Hard Drawn Aluminum,* $1\frac{5}{16}$ inches outside diameter with a wall about $\frac{1}{8}$ inch thick. Hence, it is light and exceedingly easy to handle—yet absolutely strong and durable—an assurance of safety. The Louden Staff is 5 feet long and weighs 5 pounds.

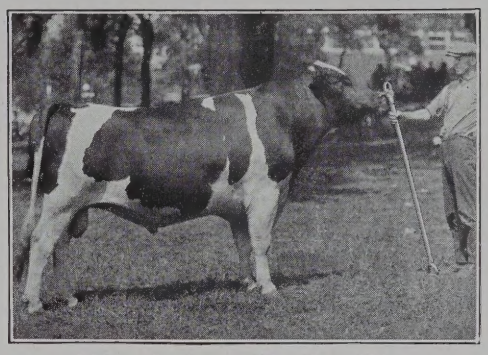
Finish: The tube is highly polished aluminum—remaining parts are painted aluminum to match. It gives a clean, bright, neat appearance—very attractive whether for every day use around the farm or for show purposes in the judging ring.

How many times during the course of a year we read or hear about horrible accidents and deaths caused by enraged bulls. And in a big majority of the cases these awful happenings are not caused by the vicious bull for precaution with him is usually taken but instead in nine cases out of ten they are caused by the "gentle bull"—the bull that daily gains one's confidence—that is handled with never a thought of the lurking danger that is constantly present. Such accounts picture tragedies that could have

The Louden Bull Staff — Continued

for the most part been prevented had a little care been taken—had a good, properly designed Bull Staff been used.

Regardless of whether the bull is known to be vicious or whether he is considered "gentle", there is only one safe, sure way of handling him—that way is by the use of a Bull Staff that meets every emergency test. With such, the bull is under your control—his powerful, brute, animal strength is curbed and the possibility of a repetition of one of these terrible accidents that are daily happening to others is eliminated.



After Winning In The Show Ring.

The Louden Bull Staff is built to protect life. It goes a step further than the ordinary staff—with it the nose ring may be grabbed regardless of the position of the bull's head. Hence, since the first step in your protection is that of getting the staff on the bull this outstanding Louden feature is of vital importance. For invariably a bull will put his head down when an attempt to get a hold on his nose is made. Thus with the ordinary staff employing a hook, the extreme outer end must project back beyond his nose before the hook will catch in the ring. In making this effort quite often the bull will shift his head—the whole procedure must again be repeated and it is apt to become a rather tedious problem before the staff is finally connected. The prongs on the Louden Staff unlock identically like a pair of grab hooks—they are quick, sure and above all they are absolutely positive and safe.

In addition the Louden Staff can be unlocked by the attendant from either the handle end or the grab end as the occasion demands. At all times the Lock is held firmly closed by means of heavy Certified Malleable Iron Castings and is so ingeniously devised that under no circumstances can the bull open it.

In times past objections have been made to the all-metal staff on the grounds that it was too heavy—too cumbersome and hard to handle. Though not as strong, some farmers have preferred to use a wooden staff for this very reason—to get away from the weight. Therefore, the Louden Staff was designed with every requirement in mind—it is constructed out of the ideal material for universal use. First it is an all-metal staff—thus it gives you the great strength needed for any emergency. Second, because the metal used in the main shaft is a Special Hard Drawn Aluminum, it is light and extremely easy to handle.

While the weight of the entire Staff is only 5 pounds, a study of the specifications will assure even the most discriminating buyer that it has great strength, rigidity and durability. The Shaft used is a Special Hard Drawn Aluminum Tube, 1 5/16 inches in diameter with a shell or wall nearly 1/8 inch thick. The Grabs and Handle are Certified Malleable Iron—metal recognized as supreme quality the country over. Thus when you get a Louden, you get a staff that has great strength and coupled with it—lightness.

Further, the bright aluminum finish lends to the attractiveness of the animal in the show ring.

The Louden Milking Stool — Fig. 1437

Specifications

Construction: Made with three legs, each of 1/4"x1 1/4" Steel Bars and fastened to seat with countersunk bolts. Seat is perfectly smooth. Legs strongly reinforced in middle by attaching to circular Malleable Iron brace. Legs flare at bottom to insure solid footing.

Size: Stool is 13 1/2 inches high. Seat is circular in shape, is 9 inches in diameter and is made out of one smooth solid piece. Thickness of seat, 1 inch. Total weight of Stool 5 1/2 pounds.

Finish: Each Milking Stool is coated with Louden Silver Gray Enamel.

Fig. 1437

You will find the Louden Milking Stool a very handy device. It is comfortable, strong and designed so that the legs flare out at the bottom thereby insuring a good secure footing. It is easy to clean and keep clean—can be hung up on a peg out of the way when not in service.

In addition to its use as a Milking Stool it may also be used for many other purposes—for children around the sand pile—as a stand for heavy flower pots—an extra seat for the automobile, etc.

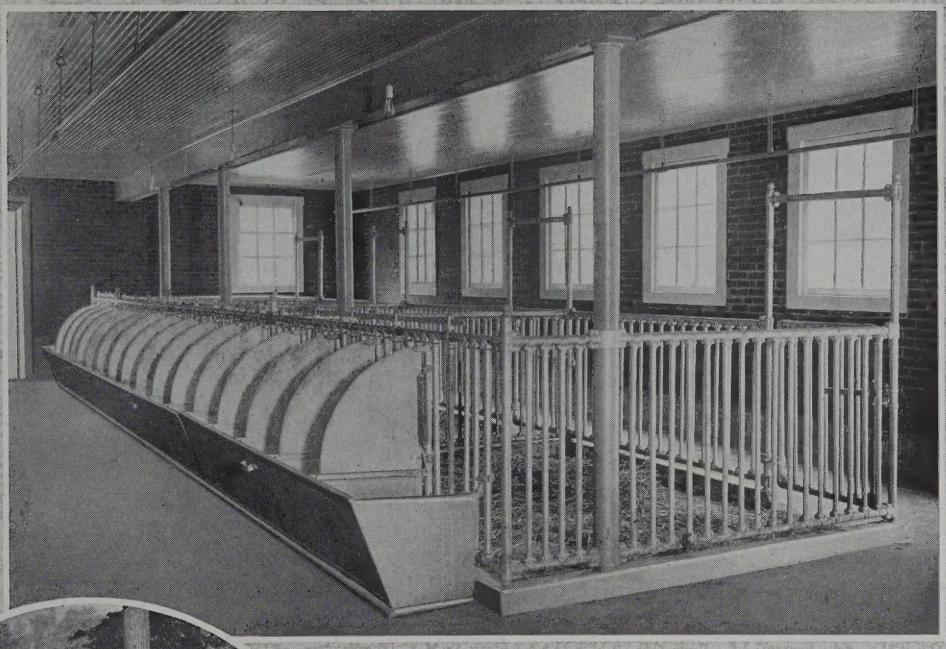
The Louden Stool is made out of good substantial materials—will give long years of hard sturdy service and is economical in cost.

Louden Cow Pens at Strathglass Farm, Port Chester, N. Y. Light — Sanitary — Well Ventilated.

W. S. Moscrip's Prize Bull, Lake Elmo, Minn. Housed in a Louden Bull Pen. Strong — Safe — Comfortable.

Tilting Mangers Make Pen Feeding Easy.
J. M. Hackney, St. Paul, Minn.

LOUDEN STEEL PENS KEEP THE ANIMALS CLEAN, HEALTHY AND CONTENTED AND PROTECT THEM FROM INJURY

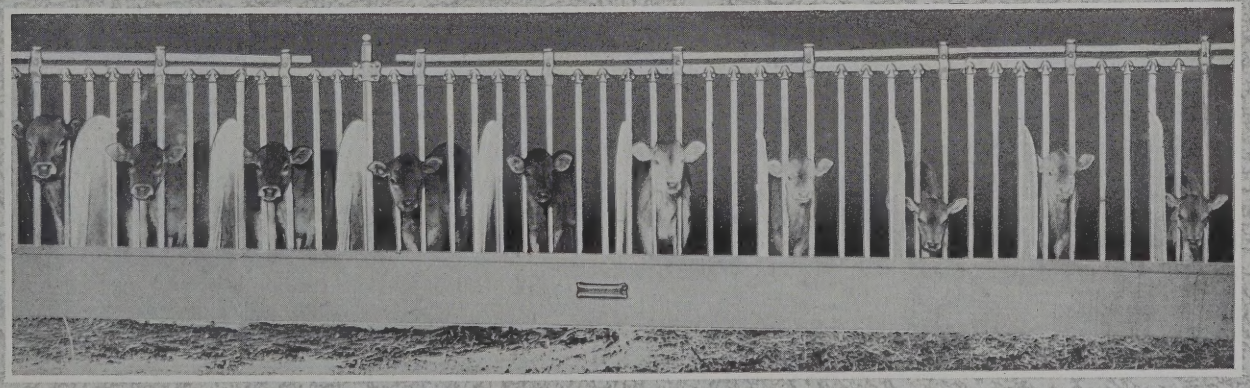


A Corner in the French Lick Calf Barn
French Lick, Ind.

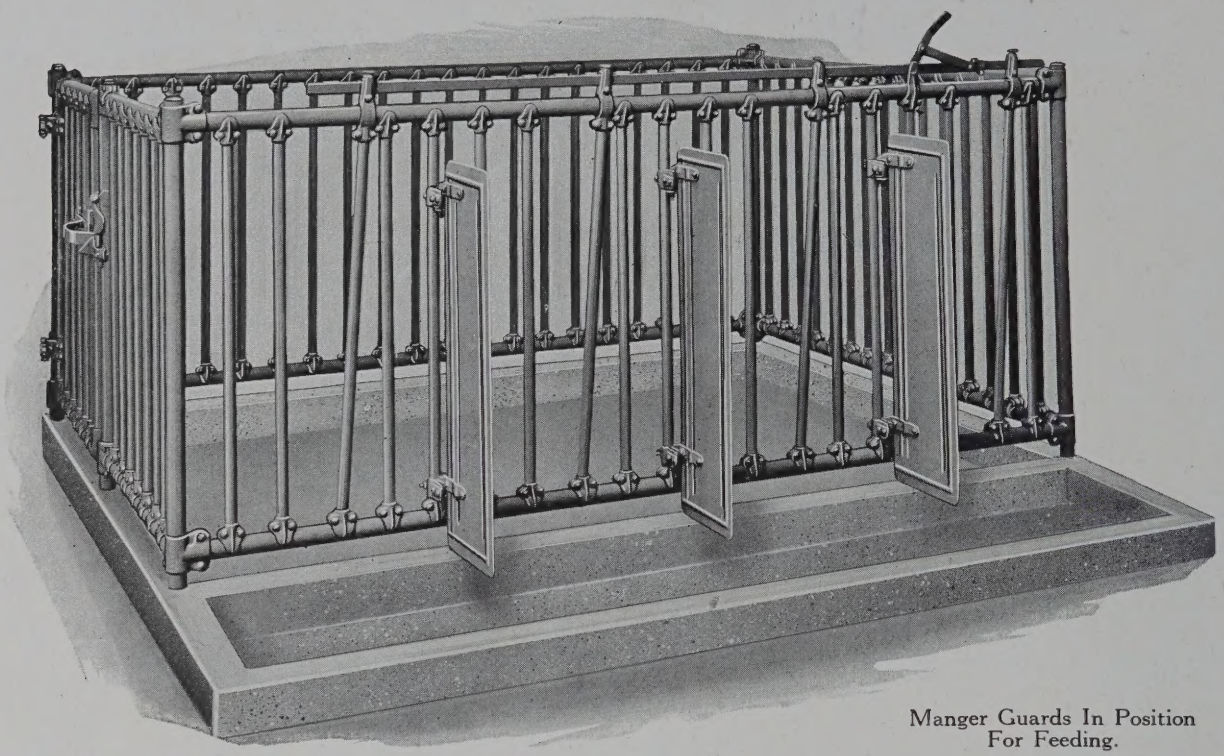
The Babies of the Herd, like human babies, should have a right start.

SOME LOUDEN EQUIPPED CALF BARNS

Louden Pens at the University of Nebraska, Lincoln, Neb.



Feeding Time—Col. Phelps' Calf Barn, Carthage, Mo.



Manger Guards In Position For Feeding.

Louden Calf Pens — Clean, Comfortable, Strong

The high producing cow is usually a finely developed, sensitive animal, consequently as a calf she was probably more or less frail. Proper care at that stage was exceedingly important—it enabled her to grow normally and develop to the fullest extent—into the profitable cow that she is.

Don't take a chance of spoiling a good producer of the future by stunting her in her babyhood. Give your calves good surroundings and proper care during the first few months of their lives and you will get the most out of them when their maturity is reached.

Calves will thrive, grow faster and do better in every way when housed in the clean, well lighted, well ventilated Louden Calf Pen. Thus it prevents losses that are so common with the stuffy, filthy, dingy wooden enclosures which are too often used to stow away little calves, until they are in a position to shift for themselves. "As the twig is bent so the tree is inclined" is as true of baby calves as it is of other babies —hence in addition to proper feed, calves should have the kindness and care that will make their wobbly little legs grow straight and strong—that will best develop their vitality from day to day.

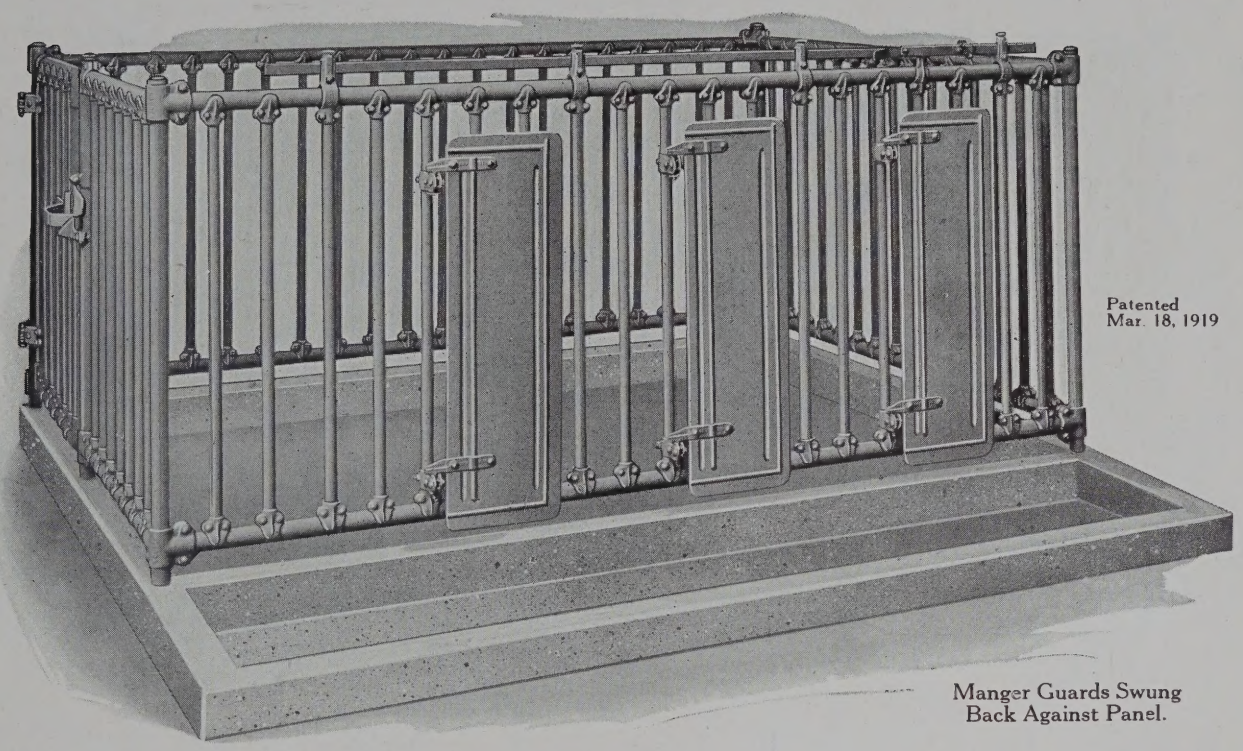
The Louden Pen is one of the essentials in raising calves. It is fitted with *adjustable* stanchions in the front panel which hold the calves while they are being fed. These stanchions may be opened and closed one at a time or all at one time as desired.

The Louden Manger Guard enables you to feed each calf individually—it prevents the fast eating calf from upsetting the bucket or robbing the slower eating calf on either side. In addition it soon breaks the calves of the habit of sucking each other's ears. When feeding time is over these Guards may be swung around flat against the front panel out of the way and the manger can be easily and quickly cleaned. Hence in the saving of time and labor alone, the Louden Calf Pen pays a big return on its investment.

Each Panel of the Louden Calf Pen is built at the factory in any length that is desired. The corner posts and gate posts being the only parts embedded in the cement when the job is installed. The Gate is hung on adjustable hinges and held shut by an automatic latch guard that is animal proof. Strong and durable.

The Manger Guards are heavy galvanized steel, *corrugated* around the edges which makes them fully half again stronger than the plain sheet without corrugations. Additional strength is also gained by the hinge castings clamping over the corrugations. Thus Louden Guards are exceptionally strong and substantial.

All Tubing is High Carbon Steel. Each Filler is firmly held at the top and bottom by a *two-bolt* connection. All fittings are smooth—there are no sharp places against which the tender calf might be injured.



Patented
Mar. 18, 1919

Manger Guards Swung
Back Against Panel.

Louden Calf Pens — Clean, Comfortable, Strong

Specifications

Materials used: The *Tubing* used in the Louden Calf Pen is *High Carbon Steel* made by the *Open-Hearth* (not Bessemer) process. It is the identical steel used in structural building—in every kind of steel work where quality is a *first* requirement. See page 91.

Fittings, are made of Certified Malleable Iron—Iron that must meet the highest requirements—that must stand the hardest tests. It is the best iron that can be produced —tough, strong and durable. See page 91.

Sizes of Tubing: The Top and Bottom Horizontal Rails, Corner Posts, Gate Posts and Intermediate Posts when such are required are 1⅝ in. O. D. Steel Tubing. The Vertical Fillers and Stanchion Sides are 1 1/16 in. O. D. Steel Tubing.

Length of Tubing Used: The Corner Posts are 4 feet, 4 inches long and the Gate Posts are 4 feet, 9 inches long. Neither attach to Curb Anchors but instead extend down into *solid concrete*—the Corner Posts 10 inches and the Gate Posts 15 inches, thereby assuring great strength and long years of hard service. Fillers and Stanchion Sides are 3 feet long. When a 5 inch Curb is used, the total height of Panel above loor is 3 ft., 10 in., and with a 6 inch curb it is 3 ft., 11 inches.

Spacing: Fillers are spaced *5 inches* apart on centers and *each* filler is rigidly fastened to the top rail and to the bottom rail with a *two bolt* malleable Grip Clamp at each end. Hence, the construction is very rigid, there is absolutely no rattle as is the case where fillers are merely inserted in holes. The Top and Bottom Horizontal Rails are connected to the Corner Posts with Louden Corner Couplings.

Construction: The Pens are built in panel sections extending from one Corner Post to another and from the Corner Posts to the Gate Posts. Panel embodies Intermediate Posts that extend into curb when such are needed. Fillers in Stanchion section are spaced to suit Stanchion Side Bars. All Fillers *adjustable* on Top and Bottom Rail.

Ornaments: All Corner and Gate Posts are capped with neat, Ornamental Malleable Iron castings. The Pen as a whole presents an exceptionally attractive appearance.

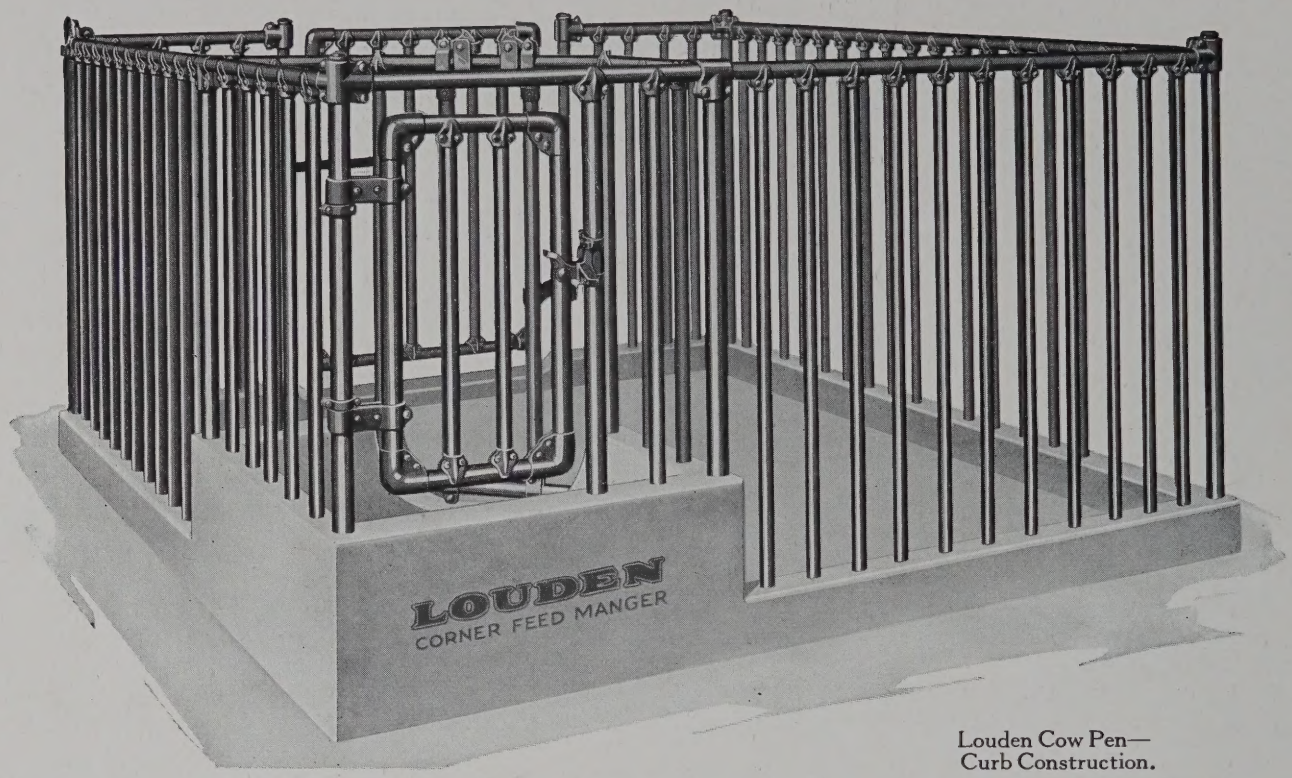
Gate: Frame is 1⅝ inches O. D. Steel Tubing and Fillers are 1 1/16 inches O. D. Steel Tubing. Hinges are Certified Malleable Iron and are *adjustable* to allow a perfect fit for the Gate in the opening left for it even when there is a slight variation in putting in the cement work for the job. Latch Bar is heavy Steel. Automatic Latch Catch is Certified Malleable Iron and is animal proof. Gate Opening is 2 ft., 10 inches in the clear.

Stanchion Section: Stanchions are regularly placed 2 ft. apart on centers, however, this may be varied to suit requirements. Thus, a section 8 ft. long will have 4 Stanchions. Stanchion Side Bars are hinged to Bottom Rail and slide on Top Rail. Stanchions are adjustable for different neck widths permitting use with calves of different ages. Stanchions may be opened all together or one at a time. Stanchions are connected by a ¼"x⅞" Steel Shift Bar.

Finish: Entire Panel Work is coated with Louden Silver Gray Enamel thoroughly baked on.

Weights: Do not be misled by weights. Pens vary so much in size and in accessories used that we *do not include* the weight of Manger Guards, Gates, etc., in the panel weight but list these items separately instead. Plain Panel per running foot weighs approximately 20 pounds; Stanchion Panel 21 pounds; Standard Size Gate weighs 58 pounds.

Manger Guards: Galvanized Steel 11 in. by 36 in., reinforced by heavy edge corrugations. Fittings are Certified Malleable Iron, clamped over these corrugations and extending almost half way across shield thereby giving it great strength and rigidity. Guards can be swung back against panel when not in use for easy cleaning of the Concrete Manger. Weight per Guard, 11 pounds. Coated Aluminum.



Louden Cow Pen—
Curb Construction.

Louden Cow Pens — Curb or Panel Construction

Many cows have been injured—many calves have been lost for the lack of suitable quarters at calving time. It is a critical time. Even the cow's future production is governed quite largely by the way she comes through her freshening period. At such a time she needs kind treatment and good surroundings. Don't take a chance on losing a good calf—on losing the cow's production during her lactation period by forcing her to freshen in a dirty, poorly ventilated, disease breeding wooden box stall or pen.

The Louden Cow Pen is an ideal freshening pen. Made out of smooth tubular steel it affords quarters that are dry, light and well ventilated. It affords quarters that are strictly sanitary. Thus it eliminates the danger of contagious infection from year to year—dreaded infection that causes cows to abort.

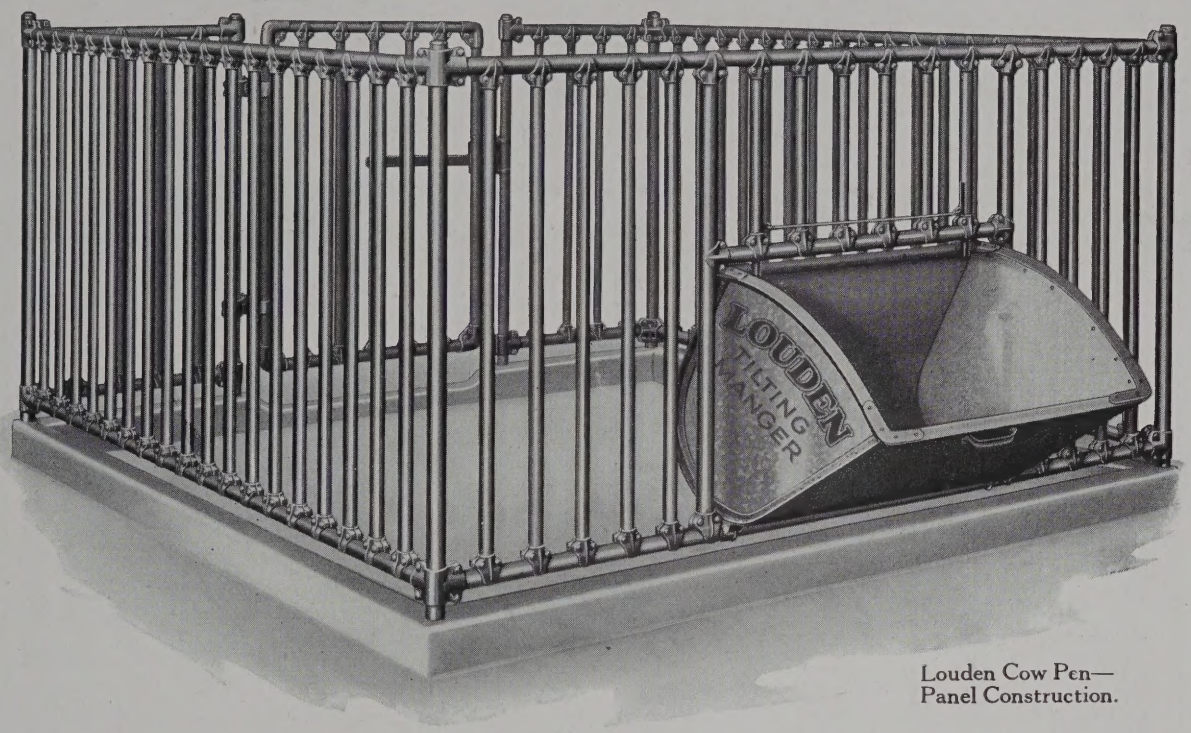
The Louden Cow Pen is strong, for it is made out of Steel and Malleable iron. High Carbon steel produced by the Open-Hearth (not Bessemer) process. The same texture of steel that is used in high class structural work where quality is a first requirement. And malleable iron that is *certified*—iron that must measure up to the highest standard of tests for strength and durability.

The Louden Cow Pen is regularly built in either of two ways. First, by inserting the fillers as well as the corner posts, gate posts and all intermediate posts in the concrete curb as shown above; and second, by connecting the fillers to a bottom rail as shown on the opposite page. The former, known as the curb construction is considerably stronger, more easily kept clean and at the same time is somewhat cheaper. But regardless of which type is used, the corner posts, gate posts, and intermediate posts will always project down solidly in cement—in no case are they ever fastened merely by curb anchors. Note how rigidly each filler pipe is built into the Louden Pen. There is absolutely no chance for it to rattle or become loose. The Louden pen is constructed to meet the rugged service that a cow pen is called upon to withstand.

The Louden Pen is provided with either the corner concrete manger shown above or the galvanized tilting manger shown on opposite page. This latter manger is set on a pivot so it can be tilted in for feeding and tilted out for filling or cleaning, being held in either position by drop-pins in pen frame. By lifting these pins the manger may be tilted out until it rests on the floor, where it can be washed or disinfected.

Two or more Louden Cow Pens are a necessity in any dairy barn. In addition to their use as freshening pens they offer excellent quarters in which to place sick cows or cows that need special individual attention.

Louden Cow Pens are neat and attractive—they add much to the general appearance of the interior.



Louden Cow Pen—
Panel Construction.

Louden Cow Pens — Curb or Panel Construction

Specifications

Materials used: The Tubing used in Louden Cow Pens is *High Carbon Steel* made by the *Open-Hearth* (not Bessemer) process. It is the identical steel used in structural building—in every kind of steel work where quality is a *first* requirement. It is strong, tough and durable. See page 91.

Fittings, are Certified Malleable Iron—Iron that must meet the highest requirements—that must stand the hardest tests. It is the best Malleable that can be produced. See page 91.

Sizes of Tubing: Top and Bottom Horizontal Rails, (when the latter is used), Corner Posts, Gate Posts and Intermediate Posts (when such are required), are 1⅝ in. O. D. Steel Tubing. Vertical Fillers are 1 1/16 in. O. D. Steel Tubing.

Length of Tubing Used: Corner Posts are 5 ft. long. Gate Posts are 5 ft. 5 in. long. Neither attach to Curb Anchors but instead extend down into *solid concrete*—the Corner Posts 10 in. and the Gate Posts 15 in., thereby assuring great strength and long years of hard service. Fillers for Curb Construction are 4 ft. 9 in. long and extend into solid cement 10 in. Fillers for Panel Construction are 3 ft. 8 in. long. Fillers above Tilting Manger 16 in. long. Panel height above floor 4 ft. 6 in.

Spacing: Fillers are spaced approximately *5 in.* apart on centers. Each Filler is *rigidly* fastened to the top rail with a *two bolt* Certified Malleable Iron Grip Clamp. With the Panel Construction the Filler is fastened to the bottom rail in the same substantial manner. With the Curb Construction the Fillers project into solid cement. Hence the Pen is always very rigid, there is absolutely *no rattle* as is the case where Fillers are merely inserted in holes.

Construction: When Panel Construction is used, pens are built in panel sections extending from one Corner Post to another and from the Corner Posts to the Gate Posts. Panel embodies Intermediate Posts that extend into curb when such are needed. All Fillers are *adjustable* on Top and Bottom Rail. Concrete Curb underneath pen is usually 5 in. high.

Ornaments: Corner and Gate Posts are finished with neat, Ornamental Malleable Iron caps. The Pen as a whole presents an exceptionally attractive appearance.

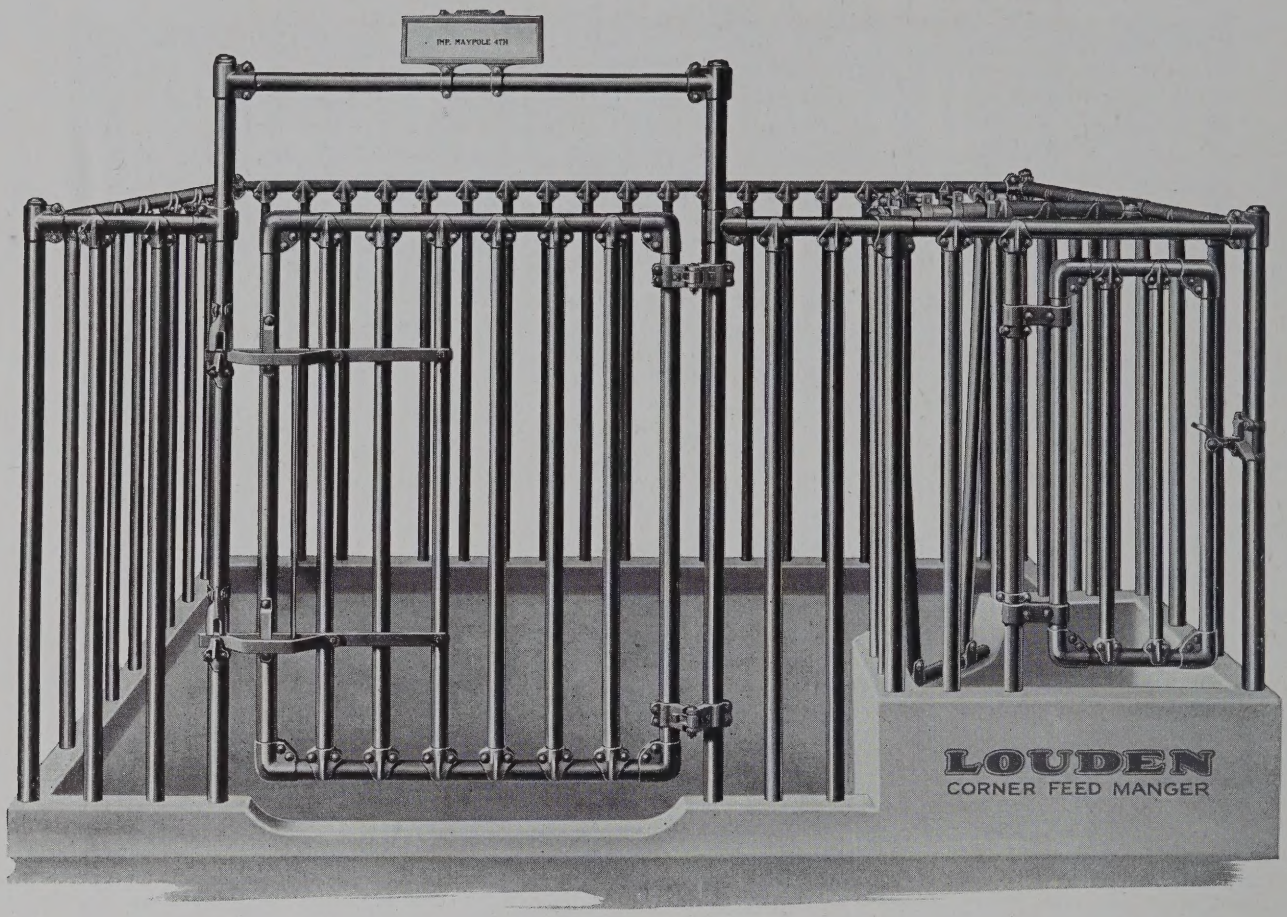
Gate: Entire frame is 1⅝ in. O. D. Steel Tubing; Fillers are 1 1/16 in. O. D. Steel Tubing. Hinges are Certified Malleable Iron and are *adjustable* to allow a perfect fit even should there be a slight variation in putting in the cement work for the job. Latch Bar is heavy steel. Automatic Latch Catch is Certified Malleable Iron and is animal proof. Width of Gate opening 40 inches in clear.

Finish: Entire Panel Work is coated with Louden Silver Gray Enamel thoroughly baked on.

Weights: Do not be misled by weights. Pens vary so much in size and in accessories used that *we do not include* the weight of Mangers, Gates, etc., in the panel weight but list these items separately. Curb Construction Panel per running foot weighs approximately 26 lbs.; Panel Construction approximately 25 lbs; Standard Size Gate complete weighs 84 lbs.

Tilting Manger: Made of *18 gauge* Galvanized Steel heavily reinforced with Angle Iron and Tubular Steel, (the latter being on inside next the cow). Size of Manger, 3 ft. long, 2 ft. 4 in. wide at top and 2 ft. 4 in. deep. Projects into pen for feeding 24 in. and projects out into alley-way for filling same distance. Weight 95 lbs. Highly coated aluminum. Manger Pat., Jan. 25, 1916. Weight of short panel that goes above manger 52 lbs.

Corner Manger: Size 3 ft. x 3 ft. x 3 ft. See page 152. Corner Posts; Posts next to Stanchion Bars and all Horizontal Rails are 1⅝ in. O. D. Steel Tubing. Stanchion Bars 1⅝ in. O. D. Steel and are adjustable in neck width, to fit either large or small cows. Fillers are 1 1/16 in. O. D. Steel Tubing and are 4 ft. 9 in. long. Frame of Manger Gate 1⅝ in. O. D. Steel Tubing; Fillers 1 1/16 in. O. D. Steel Tubing. Gate has automatic safety latch. Weight of Tubing and Fittings for manger 115 lbs.



The Louden Tubular Steel Bull Pen

Specifications

Materials Used: The Tubing is *High Carbon Steel* made by the Open Hearth (not Bessemer) process. It is the identical steel that is used in structural building—in every kind of steel work where quality is a *first* requirement. See page 91.

Fittings, are Certified Malleable Iron—Iron that must meet the highest requirements—that must stand the hardest tests. The best grade of Malleable that can be produced.

Sizes of Tubing: With the single exception of the Fillers in the Corner Manger Gate, all tubing is 1⅝ in. O. D. Steel.

Length of Tubing Used: Corner Posts are 5 ft. 8 in. long; Fillers are 5 ft. 5 in. long. Posts on each side of the Pen Gate are 6 ft. 9 in. long, and being connected at the top by an arch rail, solidly brace the Gate Opening. Strength is a main requirement in the Bull Pen, hence the Louden Bull Pen is *never* made with a bottom rail nor is it ever made to fasten onto Curb Anchors, but instead all Corner Posts, Gate Posts and Fillers extend right down *into solid cement* 9 in. (5 in. in the curb and 4 in. in the floor). Thus the strongest possible anchorage and longest years of hard service is assured. The biggest bull with all his brute strength can't budge it—it's there to stay as solid as the barn itself. Total height of Panel above floor is 5 ft. 3 in. Curb under Pen is usually 5 in. high.

Spacing: Fillers are spaced approximately 6 in. on centers. Each Filler is fastened to Top Rail by a *two bolt* Malleable Clamp and the bottom end projects down into solid cement. Hence the Panel is always very rigid, there is absolutely *no rattle* as where Fillers are merely inserted in holes.

Ornaments: Corner and Gate Posts are finished with neat ornamental iron caps. Pen as a whole is exceedingly attractive.

Pen Gate: Made of 1⅝ in. O. D. Steel Tubing throughout. Hinges are Certified Malleable Iron and are *adjustable* to allow a perfect fit even should there be a slight variation in putting in the cement work. Latch is made out of steel and is double. The two latch arms being connected by a heavy steel rod, work in unison. Latches lock automatically as Gate swings shut and can be unlocked only by human hands. Strong—animal proof. Width of Gate Opening 3 ft. 10 in., in clear.

Finish: Entire Pen is coated with Louden Silver Gray Enamel thoroughly baked on.

Weights: Do not be misled by weights. Pens vary so much in size and in accessories used that *we do not include* the weight of Gates, Corner Manger, etc., in the panel weight but list these items separately instead. Panel per running foot weighs approximately 35 lbs. Gate with arch rail which connects Gate Opening solidly to rest of Panel, weighs 177 lbs.

Corner Manger: Size is given on page 152. Made entirely out of 1⅝ in. O. D. Steel Tubing with exception of the Fillers in Manger Gate which are 1⅝ in. O. D. Steel. Manger Gate is 17 in. x 40 in. Stanchion automatically locks in either open or closed position. Sides are adjustable for different neck widths. Weight of Manger fittings, 127 lbs.

Pen Size, should be from 10 to 12 ft. square to give Bull sufficient freedom. Pen may be built against wall or in corner of barn in which case only two or three sides will be required.

The Louden Tubular Steel Bull Pen

It makes no difference how easy a bull is to handle—or how gentle he may seem, one can never tell what may happen to arouse him to deeds of violence. A bull is as quick as a flash. He bursts into a rage instantly. In the twinkle of an eye he becomes an infuriated beast. Unless this tremendous raging brute strength is controlled, you, your hired man, your wife, your children or whoever may happen to be in his path of destruction, are at his full mercy. Somebody is gored, trampled under foot, mangled—a horrible accident has happened. Your bull has suddenly gone violently mad, and someone dear to you has paid the penalty—all because the bull wasn't kept in safe quarters.

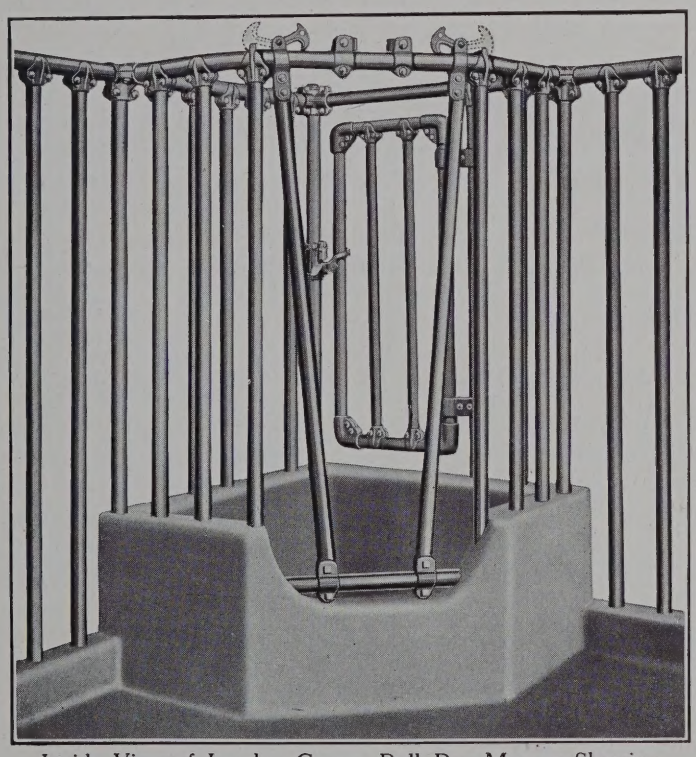
Day after day the press tells its story of these awful happenings that occur the country over. In ninety-nine cases out of every hundred it's the same old story—someone has been negligent, careless—the result of too much confidence in the bull that was thought to be gentle. Prevent the possibility of any such gruesome accident occurring on your farm. Do it *now*, before it is too late. Provide quarters that are absolutely safe—bull proof, under all conditions—at all times.

The Louden Bull Pen gives you this full protection—this assurance of safety and it's an ideal home for the bull in every other respect. He has full freedom to get the exercise he needs—something that he doesn't get when he is kept tied by a ring in his nose. He has clean sanitary quarters that are well ventilated and he can be housed out in the open where he can see the rest of the herd—and thus be contented. Hence, the Louden Pen gives the bull every advantage that goes to keep him in first class condition at all times—and it stands guard between him and destruction when he loses his temper.

The Louden Bull Pen embodies great strength. The reasons for this are best told by the quality of materials used and the manner in which the pen is built into the barn.

In the first place, every piece of tubing is *high carbon* steel—made by the Open-Hearth process—it's the same texture of steel that is used in every kind of steel work where quality is a first requirement. It is the ideal material for a bull pen because it is exceedingly strong, tough and durable.

The upper end of each upright tube is solidly connected to the horizontal rail by a heavy two bolt Certified Malleable connection and the bottom end extends down through the cement curb into the cement floor. Hence, the entire pen is anchored firmly. Never will you find a Louden Bull Pen built with a bottom rail. Such a construction is all right for calves and serves well in many cases for cows but it could never embody the great strength that we deem necessary for a Bull Pen to be able to withstand. A bull throwing his ton of weight against the Louden pen cannot budge it—it has the strength to meet every unforeseen emergency.

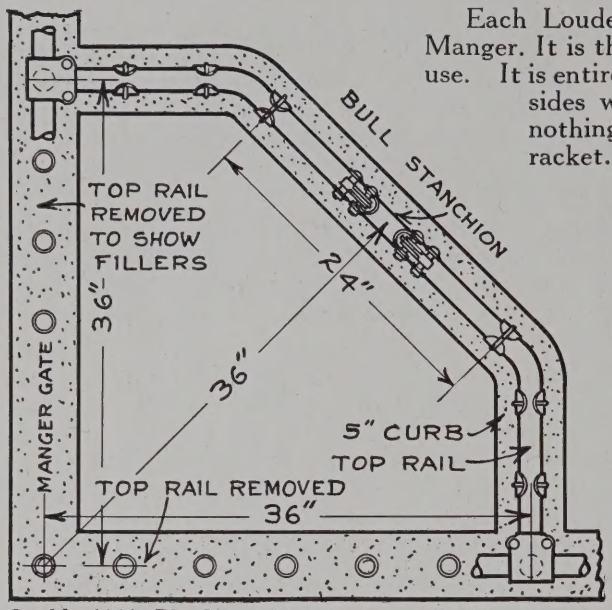


Inside View of Louden Corner Bull Pen Manger Showing Stanchion in Open Position.
Patented Dec. 7, 1915 and July 25, 1916.

Now look at the manner in which the Louden *gate opening* is solidly braced and tied to the panel on each side of it by means of the gate arch. Thus, the panel including the gate is equally as strong as any other panel, for we do not depend merely on a hinge and latch post only as high as the top of the pen to stand up under the severe strain that might be exerted against it. This is an important feature in Bull Pen construction.

The Louden gate latch is a double latch made out of bar steel. The two latch arms are connected by a heavy steel rod so that they work in unison. As the gate swings shut the latches automatically lock and can be unlocked only by human hands. The gate hinges—in fact all of the pen fittings are made out of Certified Malleable Iron—Iron that embodies the highest stamp of quality—for strength and durability. The Louden Bull Pen is built for "safety first"—safety for the herd, safety for the bull and above all, safety for human life.

The Corner Feed Manger for Louden Bull Pen



Cut No. 1166. Plan View of Louden Corner Bull Pen Manger.

Each Louden Bull Pen is fitted with the Louden Corner Feed Manger. It is the best, most practical manger ever devised for bull pen use. It is entirely within the pen instead of being mounted in one of the sides where it will project out into the alleyway. There is nothing loose for the bull to play with and keep up an incessant racket. The concrete bowl is roomy—yet the depression under the stanchion permits the bull to reach to the bottom and eat with full comfort. The materials used are the same as those used in the other parts of the Louden pen and the panel work extends down into the cement in exactly the same substantial manner, thus the manger is strong and durable—much more so than a wooden manger. In addition, it is easier to keep clean.

The Bull Pen stanchion built into the Corner Manger may be adjusted wider or narrower to fit large bulls or small ones. It automatically locks in both open and closed positions and the locks are protected by guards so that it is impossible for the bull to open them with his horns.

When there is work to do in the pen, a little feed will lure the bull into putting his head through the open stanchion. It can then be locked shut thereby holding him safely until your work is finished—you are out and you want to again give him full freedom of the pen by releasing him.

It is not necessary to come in touch with the bull in feeding, for the manger gate through which the feed is placed is located on the side of the pen next the alley and if desired the bull can be shut out of the manger any time by closing the stanchion. Even when the bull is eating, the full height of the panel around the outside manger corner absolutely prevents him from reaching anyone that might unconsciously get too close. Thus the Corner Manger as well as the pen itself is bull proof in every respect.

Cut No. 1166 is a top or plan view of the curved top rail used in the Louden Corner Manger indicating where the stanchion is placed. Also a plan view of the outside curb of the manger, showing the location of the posts and fillers and the manger gate for feeding. As the cut shows the size of the Louden Manger is 36x36x36 inches. The bottom should be 1 or 2 inches above the floor level of the pen and should be rounded to leave no sharp corners in the manger to catch and hold feed. It should be provided with a floor drain.

In addition a water bowl may be placed in the manger affording the bull water just when he wants it—thus eliminating the work of having to water him.

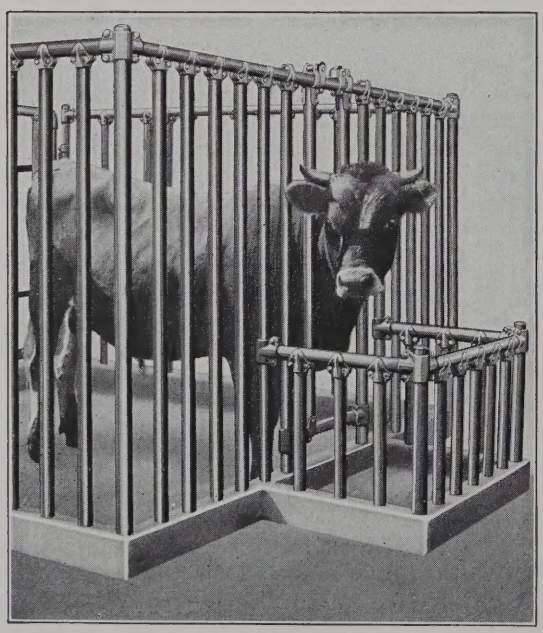


Fig. 1300. Bull Pen with Low Outside Manger.

Another Type of Bull Pen Manger

Fig. 1300 shows another type of bull pen manger. With this construction the manger is built low on the outside of the pen. Standard size is 26 inches wide, 38 inches long and 30 inches high from the floor. However, this size may be varied if desired.

This type is suitable for use under certain conditions but for a vicious animal the completely enclosed manger is much the safest. The outside manger is perhaps a little more easily filled and is also somewhat cheaper than the enclosed type.

The regular Louden Bull pen stanchion is used with this manger. Once locked in this stanchion the bull is there to stay until released. It is the strongest and altogether the safest way to handle such an animal.

Two Types of Young Stock Panel with Stanchions

Specifications

Fig. 1372

All tubing used in the two types of Young Stock Panel shown on this page is made out of High-Carbon Steel produced by the Open-Hearth process —strong, tough and exceedingly durable.

Horizontal pipes, stanchions, and intermediate posts projecting into the concrete are 1⅝-inch O. D. steel tubing.

Fillers, 1 1/16-inch O. D. steel tubing.

All fittings are made out of certified malleable iron.

Height of panel over all, 4 feet 6 inches, height of panel on center of top and bottom rail, 3 feet 10 inches.

All stanchions are adjustable in neck width to suit the requirements of the size of animals held.

Standard spacing on center of upright pipes, 5 inches.

Spacing of stanchions varies to suit conditions but standard spacing is 2 feet 10 inches on center apart.

Finished with Louden Silver Gray Enamel, baked on.

Weight about 27 lbs. per ft.

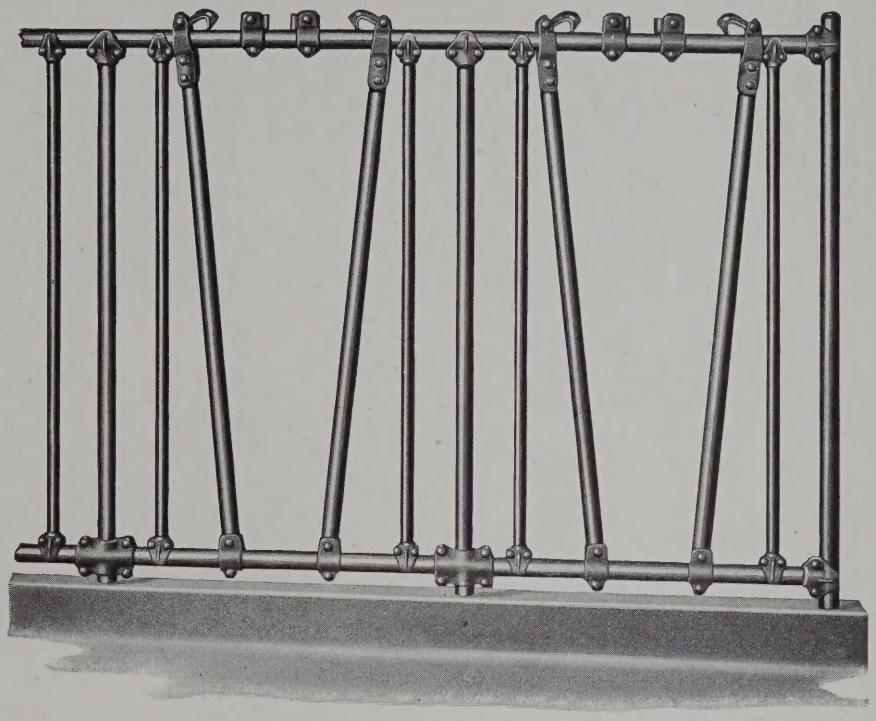


Fig. 1372

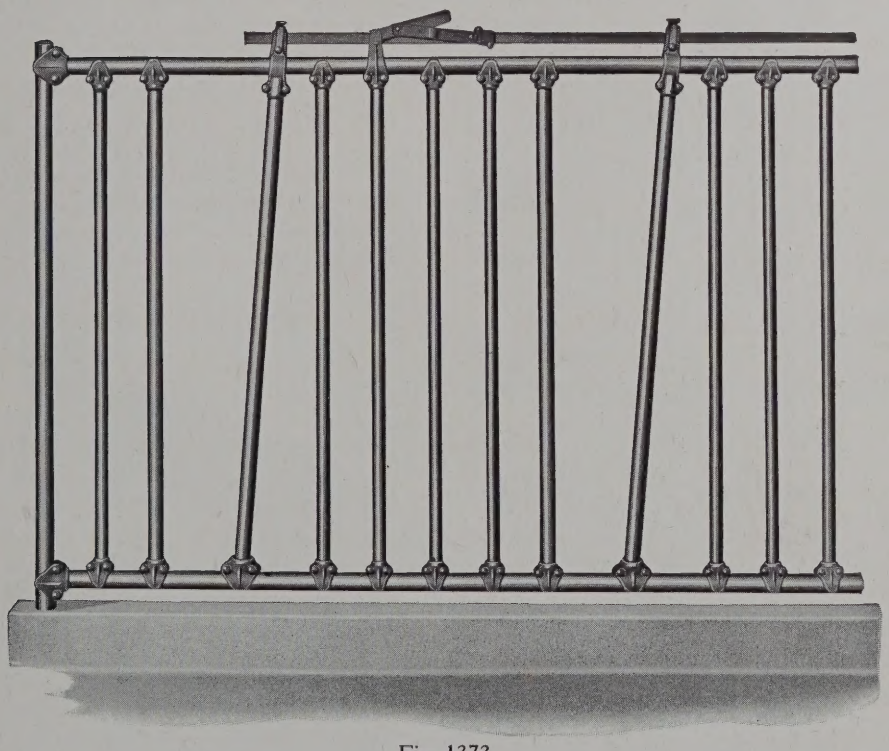


Fig. 1373

Specifications

Fig. 1373

All horizontals and intermediate pipes projecting into concrete are 1⅝-inch O. D. steel tubing.

Movable stanchion pipe, together with stationary pipe forming the other side of the stanchion opening, are both 1 5/16-inch O. D. steel tubing.

All other fillers are 1 1/16-inch O. D. steel tubing.

Fillers between stanchions spaced about 5 inches on center.

Stanchions spaced about 2 feet 10 inches on center apart but may be varied to suit conditions.

Width of stanchion is adjustable to suit size of stock housed.

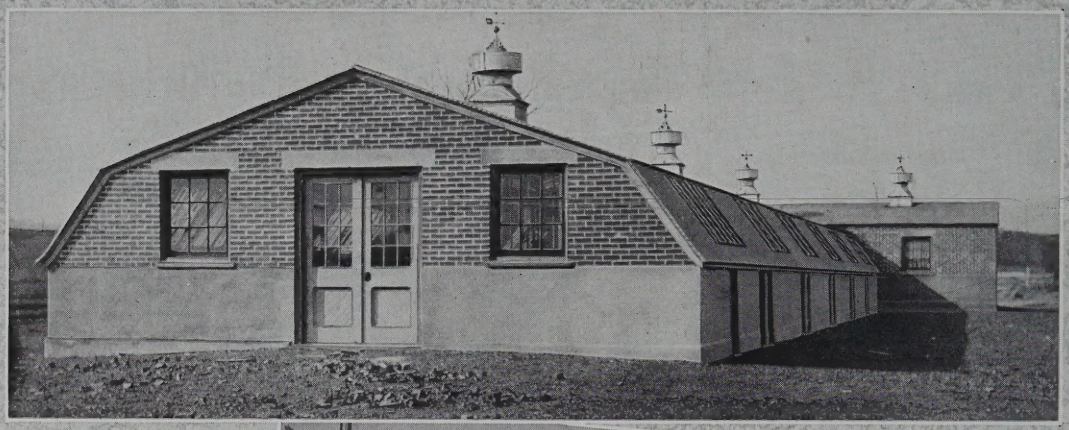
Stanchions opened and closed one at a time or all together.

All fittings are certified malleable iron—strong, tough and durable.

Height of panel over all, 4 feet 6 inches, height of panel on center of top and bottom rail, 3 feet 10 inches.

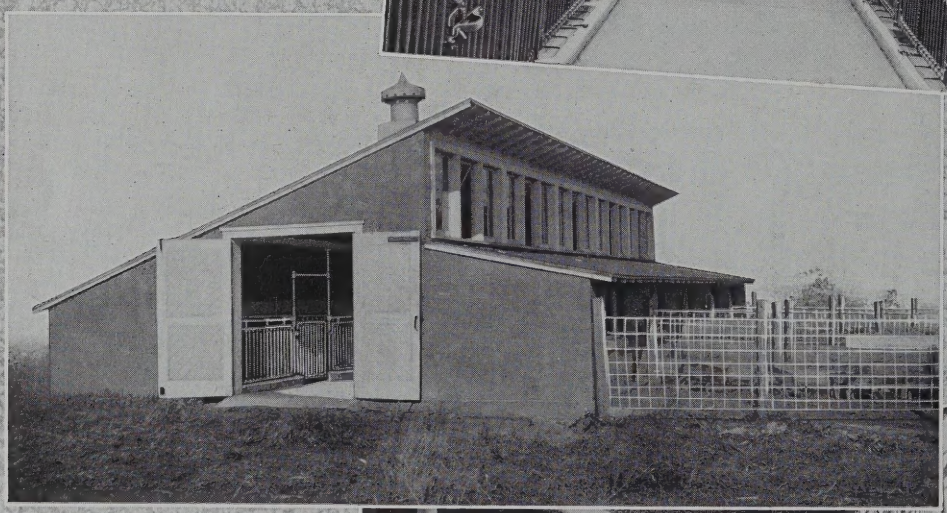
Finished with Louden Silver Gray Enamel, baked on.

Weight about 23 lbs. per ft.



A neat, attractive house like this shows the hogs off to a better advantage.

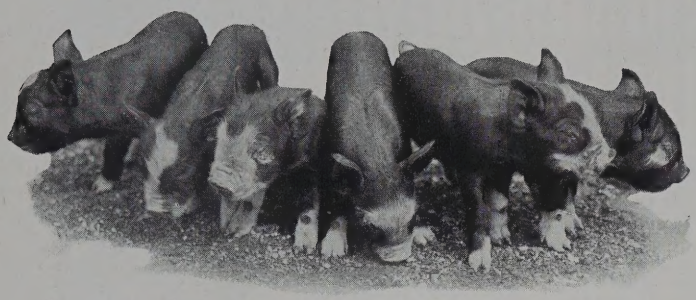
Louden Equipment in above hog house. Penn. Industrial Reformatory, Huntingdon, Penn.



Plenty of sunshine in this South front house saves many a small pig.

Interior of above house showing clean, sanitary conditions with Louden Pens. Hennepin County Poor Farm, Hopkins, Minn.

Making Hog Raising More Profitable



Save More of the Pigs Farrowed.

The making of the cheapest possible gains is the corner-stone of successful hog raising. During the last twenty years we have learned that the cheapest gains are obtained by a maximum utilization of pasture. Even the hogging down of corn and other crops may be considered part of the pasture-pork method, for rape, cowpeas, soy beans, or other green forage usually is grown with the corn for this purpose.

Maximum gains on pasture can be obtained only by having the pigs well started—weaned if possible—by the time the earliest spring pasture is available. Not only are maximum pork gains obtained on early grass, but by fall the pigs are of a size to make the most of hogging down corn or other crops. In addition, early spring pigs usually come before the rush of spring field work sets in. This is another advantage that is very helpful in keeping everything going right.

Early spring pigs also make it more practicable to grow a second litter of fall pigs whenever that is desirable. It enables the little fellows to get a little pasture, a sturdy growth, and vigor enough to keep them healthy and gaining right through the winter, and ready for market before all the pens are again needed for the early spring litters.

Big gains on pasture, maximum utilization of hogging down, and two profitable litters a year are possible only when a warm, sanitary and convenient hog house is available.

The main reason good, warm, sanitary hog houses are not as common as modern dairy barns, is that hogs have, for the most part, shifted for themselves a good deal. They have run to hay stacks or straw stacks or had some other makeshift shelter. Before pasture came into general use in hog production, there was no special advantages in having early pigs, and it was possible to have pretty fair success with pigs farrowed late in the spring or early summer.

The fact that modern, substantial, hog houses are coming rapidly into favor, proves as nothing else can, that hogs better cared for are bigger profit makers. With cheaper and quicker gains possible, the hog raiser who avails himself of modern buildings and equipment will stand to make the extra profits that come only to the leaders in any business.

Sunshine in the Hog House

One of the most essential and important features in the ideal hog house is the amount of sunshine it will let in during the late winter and early spring farrowing season. Sunshine promotes sanitation, warmth and dryness—three main requirements for the healthful housing of hogs. Sunshine has a stimulating and invigorating effect, especially on small pigs, that seems to be necessary if they are to do their best.

Sunshine is also an especially effective disinfectant. Quite often cholera and other hog diseases flourish because of dark, damp, unsanitary quarters. However, with a hog house properly constructed, the bright rays of sunshine coming in through the windows, together with its warmth, will disinfect the beds and floors to a considerable extent. In fact, many germs cannot survive in sunshine.

It is very important that the question of sunshine be given thorough consideration in planning the new hog house. During the usual farrowing period from February 1st to April 15th, the variation in the slant of the sun's rays with the ground at noon is 27 degrees. So merely placing windows in the roof is not enough, because unless the windows are located just right for your latitude, you may have a sufficient number of roof windows and yet have very little sunshine in the pens during all important months of February, March and April. These same windows may flood the pens with sunshine during the middle of the summer when it is extremely hot and you prefer to have the sunshine thrown in the alleyways as much as possible. The location of the windows is then second in importance only to the selection of the proper type of house to be built, for upon the location of the windows depends where the sunshine is to be concentrated.

We have made a very thorough investigation of the sunshine problem—the type of hog house that will be most efficient in this respect—the size and proper location of the windows—the style of window that will get the best results, etc., and will be glad to give you special information on what is best suited for your locality, as well as your particular requirements.

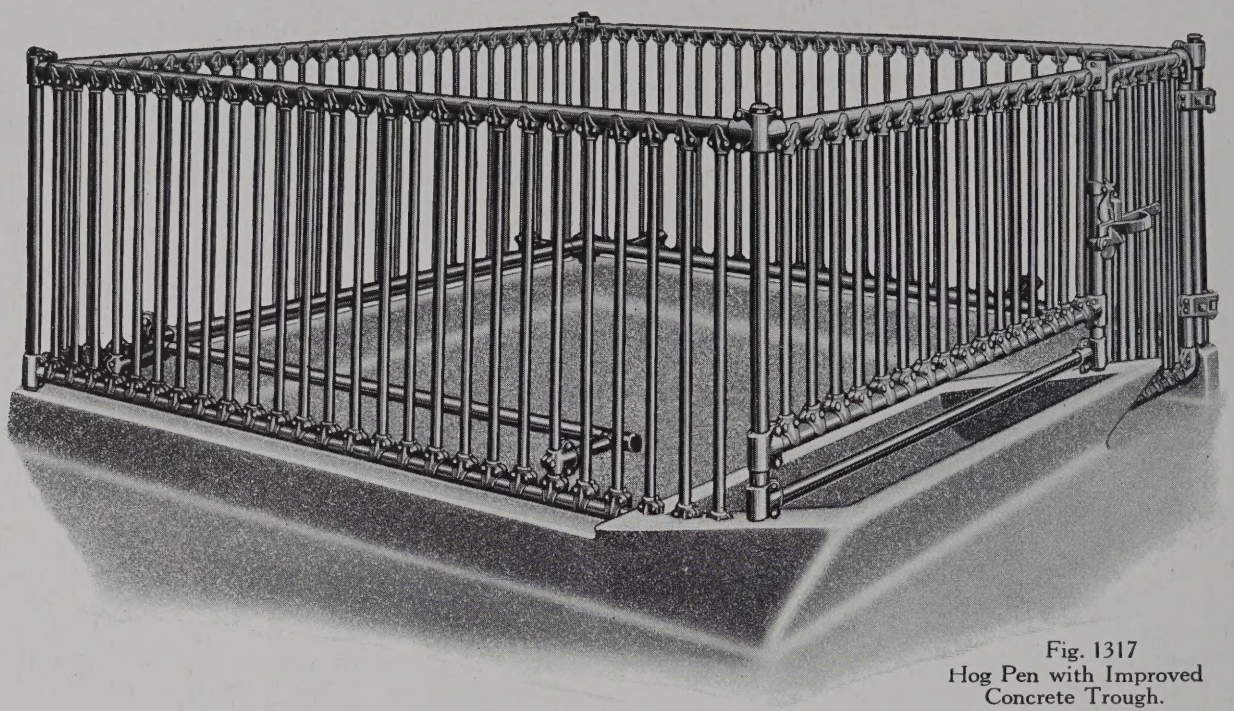


Fig. 1317
Hog Pen with Improved
Concrete Trough.

Louden Tubular Steel Hog Pens

Specifications

Materials used: The Tubing is *High Carbon Steel* made by the Open Hearth (not Bessemer) process. It is the identical steel that is used in structural building—in every kind of steel work where quality is a *first* requirement. See page 91.

Fittings: Made out of Certified Malleable Iron—iron that must meet the highest requirements—that must stand the hardest tests. It is the best grade of malleable iron that can be produced. See page 91.

Sizes of Tubing: Top and Bottom Rails; Corner Posts; Gate Posts; Intermediate Posts when such are required, and Pig Guard Rails in all Louden Hog Pens are made out of 1⅝ in. O. D. Steel Tubing. Fillers are ⅞ in. O.D. Steel Tubing.

Length of Tubing Used: Corner Posts are 4 ft. 1 in. long and Gate Posts are 4 ft. 4 in. long. Neither attach to Curb Anchors but instead extend down into *solid concrete*—the Corner Posts 6 in. and the Gate Posts 9 in., thereby assuring great strength and long years of hard service. Height of Pen is 3 ft. 6 in. Curb under Pen is usually 5 in. high.

Spacing: Fillers are spaced either 3 in. or 4 in. apart on center, as ordered and each filler is rigidly connected to the Top and Bottom Rail. Hence there is no rattle with the Louden Panel, it is solid, substantial and durable. Price of Panel varies according to spacing of Fillers.

Construction: Pens are built in Panel sections extending from one Corner Post to another and from the Corner Posts to the Gate Posts. Panel embodies Intermediate Posts that extend into curb when such are needed.

Ornaments: Corner and Gate Posts are finished with neat Ornamental iron caps. Pen as a whole is very attractive.

Gate: Frame is 1⅝ in. O. D. Steel Tubing and Fillers are ⅞ in. O. D. Steel Tubing. Hinges are Certified Malleable Iron and are *adjustable* to allow a perfect fit for the Gate even should there be a slight variation in putting in the cement work. Automatic Latch Catch is Certified Malleable Iron and is animal proof. Width of Gate Opening 2 ft. 4 in., in clear.

Pig Guard: See Specifications on following pages.

Finish: Silver Gray Enamel baked on.

Weights: Do not be misled by Weights. Pens vary so much in size and in accessories used that *we do not include* the weight of Pig Guards, Troughs, Gates, etc., in the Panel weight but list these items separately instead. Plain Panel per running foot weighs approximately 14 pounds. Standard size Gate with Fittings Complete weighs 47 pounds.

Troughs: Louden Pens are built with concrete trough as shown above or with Swinging Panel over concrete trough or with Easy Clean Out Metal trough, shown on following pages.

Louden Steel Hog Pens are designed to let sunshine into the pens onto the floors, for after all it is the sunshine that reaches the pen floors that keeps the latter dry, warms and stimulates the little pigs and disinfects the nests. Old style wooden pens largely defeat the purpose of the modern sunshine hog house because the wide boards used keep from 60 to 80% of the sunshine that strikes them from reaching the pen floors. Louden Steel Pens let 70% of the sunshine pass through—three times as much as the wooden pens admit.

Louden Pens are sanitary. They are easy to clean and keep clean. The tubing used in building them is smooth; the couplings fit snug and tight—in fact, there are no cracks nor crevices anywhere for dirt or debris to collect and breed disease germs. On the other hand, wood is porous, filth clings to it more readily and where used for pens it is hard to keep clean and sanitary.

Louden Tubular Steel Hog Pens—Continued

In the rush of the farrowing season the open panel work of Louden Steel Pens is a big help to the anxious herdsman, for he can see at a glance the sows in a dozen pens and always knows where his assistance is most needed. This open panel work also permits a good circulation of air and aids proper ventilation.

Louden Steel Pens are durable—they will last as long as the house stands—their original cost is the only cost. Wooden pens rot out and give away—a certain amount of upkeep is necessary from year to year, an expense totaling more in the long run than the first cost of modern steel equipment.

In addition to all these strong advantages, Louden Equipment saves half the work of cleaning the house and feeding the hogs. It shows the pigs off to a better advantage at sale time—a feature often reflected in a higher net average for the offering.

Louden Steel Pens are a source of profit to the hog raiser but in addition to this they are a source of pride and satisfaction as well, because of their neat appearance and attractive design.

The Pen Feeding Trough

There is a widely varying opinion among hog men as to the type of trough best suited for all conditions. Some prefer a concrete trough with stationary panel above. Others like the concrete trough with a swinging panel over it, while quite a few want a good sheet metal trough that can be easily and quickly cleaned out. All are good types. However, certain peculiar conditions sometimes make one design preferable over another. So in order to meet every hog house need, Louden Pens are now equipped with any of the above three types of troughs. These are fully described on this and following pages. Regardless of what your selection may be, you can feel certain it is built along the most practical lines to suit the requirements of the hog and that it will be a real convenience and a labor saver from the standpoint of the owner.

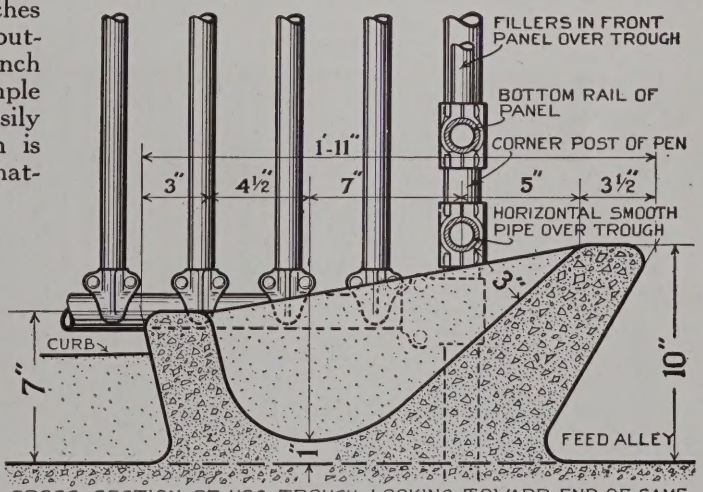
Fig. 1317 illustrates the Louden Hog Pen with concrete trough and stationary front panel.

Cut 1318 is a sectional view through the trough showing its design. In order to give the hog plenty of nose and head room while eating, the trough is set considerably off center into the pen. It is so designed that feed and water can be poured in easily from the outside without the hog interfering in the least and at the same time does not permit any space large enough for small pigs to get out into the alleyway.

This improved concrete trough is only 7 inches above the floor inside the pen and 10 inches outside. It is 6 inches deep, the bottom being 1 inch above the floor level. The width provides ample capacity, while the shape is such that it is easily and quickly cleaned. The entire construction is absolutely smooth and offers no lodging place whatever for feed or dirt.

The inner side of the trough is cut under so that it affords protection for the little pigs, and prevents the sow from lying on or crushing them.

Just above the trough is a smooth horizontal pipe running parallel with the front panel and 4½ inches on center below the bottom rail of the same. This pipe is perfectly smooth and can be quickly cleaned should feed be splashed on it at any time.



CROSS SECTION OF HOG TROUGH LOOKING TOWARD END OF SAME

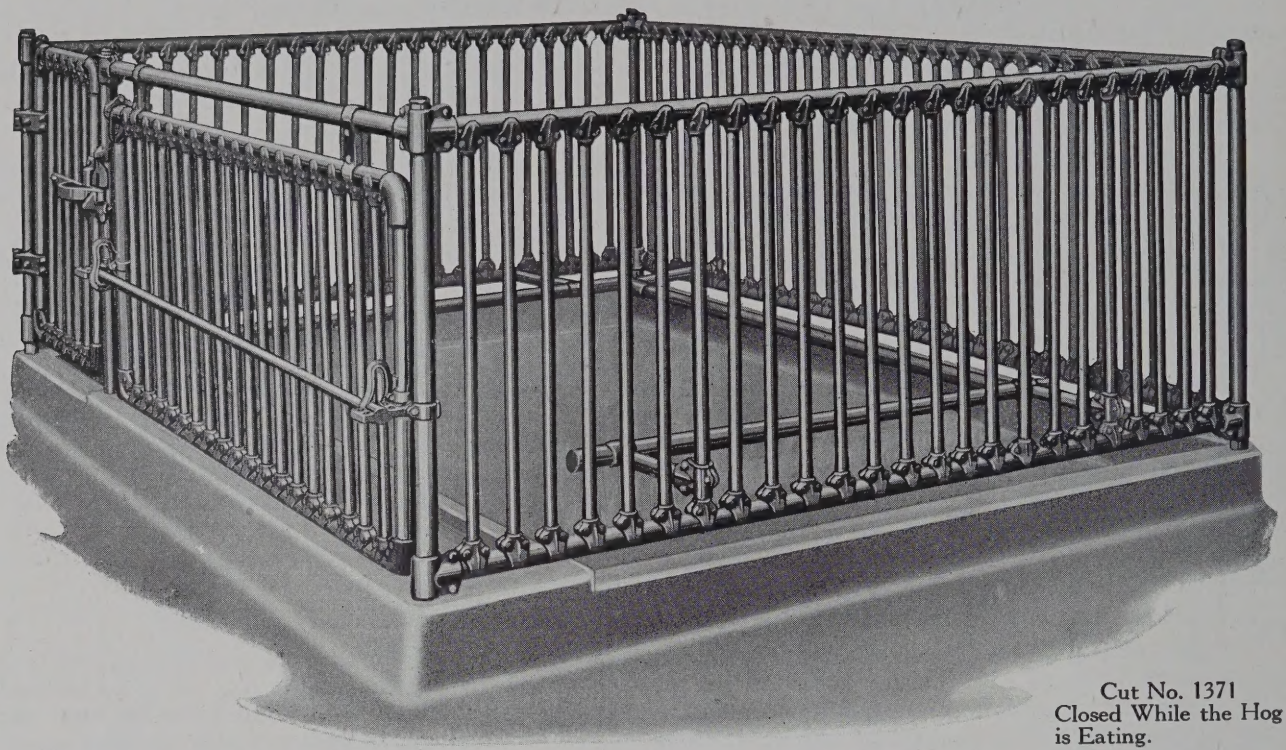
Cut No. 1318

Probably the most valuable feature of this concrete trough is that stationary panel can be used over it without losing any of the advantages of the swinging panel. This means that the panel is always in proper place for each feeding and that all the time of adjusting it in or out, such as is necessary with the swinging type, is saved—and a little time saved each day is quite an item at the end of the year.

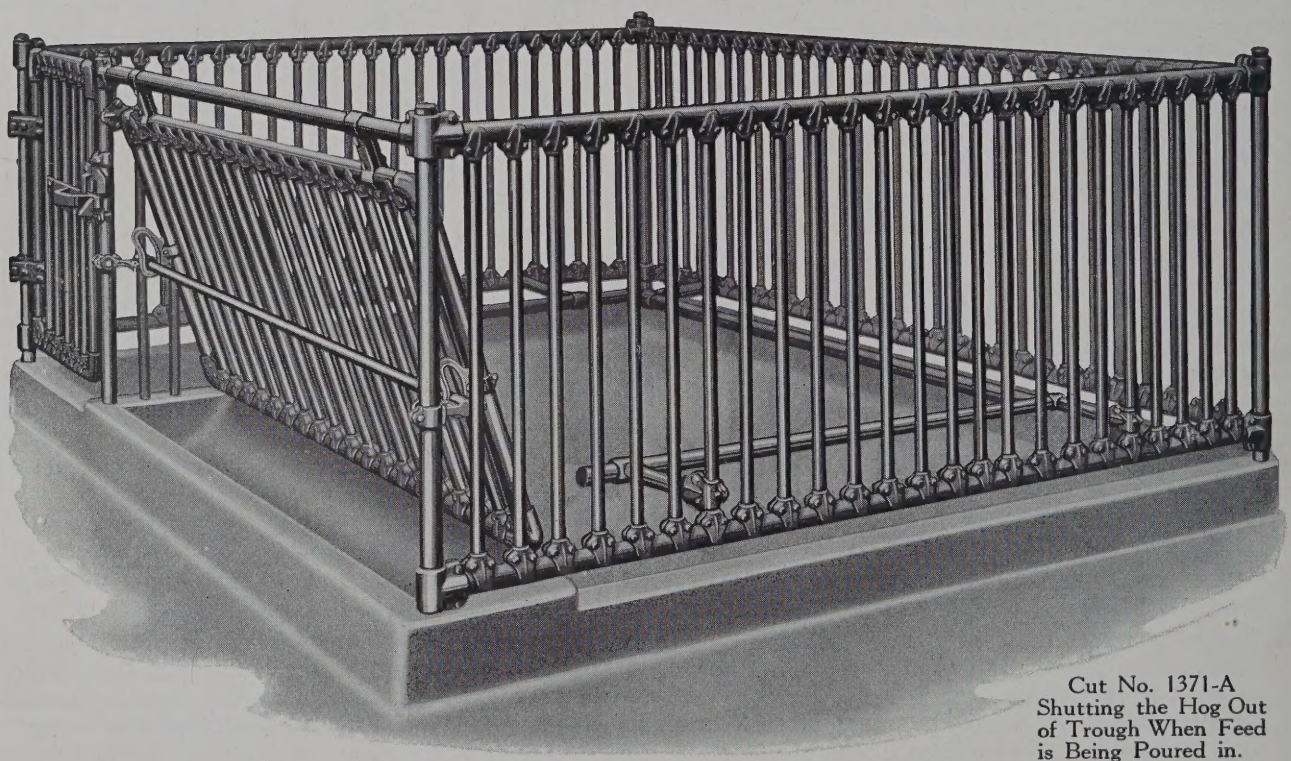
The general design of this trough is the result of the ideas gained from hundreds of prominent hog raisers—it is practical in every way, handy for the attendant, convenient for the hog, easily built and as durable as the house itself. These features probably form the main reasons why the Louden concrete trough is so popular among the many hog men who are using it. (Note—We can furnish templets and cement tools for making this improved concrete trough.)

Louden Hog Pen With Swinging Panel

Above Feeding Trough



Cut No. 1371
Closed While the Hog is Eating.



Cut No. 1371-A
Shutting the Hog Out of Trough When Feed is Being Poured in.

Louden Hog Pen With Swinging Panel

Above Feeding Trough

Specifications

Hog Pen Panel: For complete specifications see page 156. The type of feeding trough selected governs the specifications of the front panel over it. Otherwise the pen is always the same regardless of which feeding trough is used.

Swinging Panel: Frame is made of 1⅝ in. O. D. Steel Tubing. Fillers, ⅞ in. O. D. Steel Tubing 2 ft. 2 in. long and spaced either 3 or 4 inches apart on centers as desired. Fittings are made of Certified Malleable Iron. Panel automatically locks in place when tilted either in or out. Panel may be operated from any point in front—it is not necessary to go to one end to unlock a release handle or something of this sort. Tilting mechanism is extremely simple—yet very ingenious—it consists of an eccentric slide and thus requires no handles or complicated parts which are liable to get out of order.

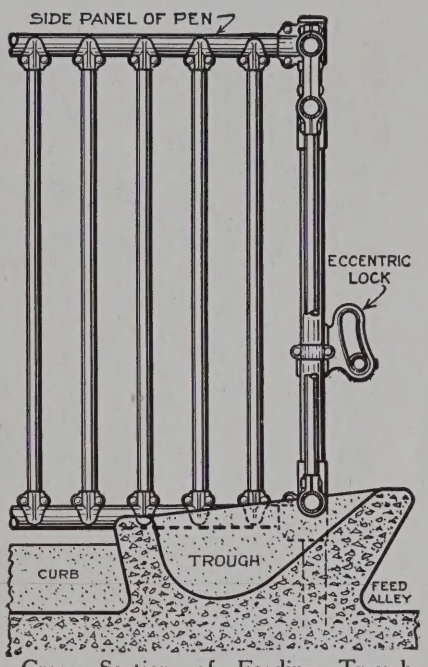
How common it is to walk down through the feedway with a bucket of slop and find every pig in the pen waiting for you at the trough. They always seem to get there first. And when you start to pour in, they climb in the trough, crowd over it, bump against your bucket, run into you—you pour more feed on the hogs than in the trough. You kick one pig out of the way and there's another in his place before you can get set to pour again. This scramble and confusion is an aggravation. It not only means hard work and waste of feed, but it means loss of time as well. And it happens at every feeding with the old style of trough commonly used.

All Louden Hog Pens and all Louden Feeding Troughs are designed to make just such occurrences impossible. Take the Louden Swinging Panel shown on opposite page for instance. It swings in the pen to the back edge of the trough and automatically locks there. It shuts the pigs out and gives you the entire length and width of the trough to pour in. The work is easy and quick—there's no inconvenience whatever and what's more there's no loss of feed. After the feed has been placed—tilt the panel back out flush with the front of the pen—it again automatically locks and then gives the hogs the full trough to eat out of. The Swinging Panel provides for orderly feeding and each pig eating in comfort. Take the time it saves and the feed it saves—these two items alone will pay for it in a few months period. And while the hard work it eliminates and the cleaner quarters it makes possible cannot be measured in dollars and cents, they are nevertheless equally as important.

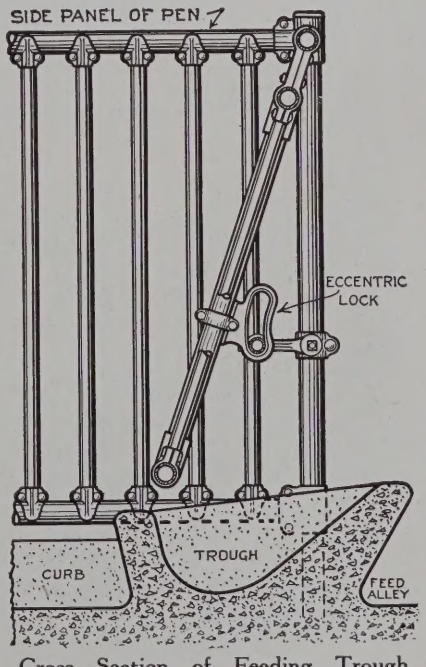
The Louden Swinging Panel is so simple that there is nothing about it to get out of order. The eccentric slide at each end automatically locks the panel either in or out and at the same time makes it possible to tilt the panel with very little effort. Simply take hold of the connecting rod that extends outside along the panel front—lift it slightly and the panel tilts forward or back as you desire and it always locks in place. The Panel may be tilted from any point along trough—it is not necessary to always go to one end to unlock a release handle or some thing of the sort. This is an exclusive Louden feature of convenience that saves many a step for the busy attendant.

The pen is hog tight around the trough so that regardless of position tilting panel may be in, small pigs cannot possibly get out.

All cuts describing this panel show concrete feeding troughs. However, if desired we can furnish sheet metal troughs instead—this is a matter of preference with the customer. Nevertheless our desire to not only put the highest possible quality of material and workmanship in all Louden equipment, but to have Louden customers ever afterwards satisfied as well, leads us to recommend the concrete trough as the most practical for use with any panel that tilts.



Cross Section of Feeding Trough showing Swinging Panel automatically locked Closed, giving Pigs the full trough to eat out of.



Cross Section of Feeding Trough showing Swinging Panel tilted into pen and automatically locked—thus keeping pigs out of Trough while feed is being poured in from Alleyway.

Louden Hog Pen With Tilting Metal Trough

Easy Feeding — Quick Cleaning

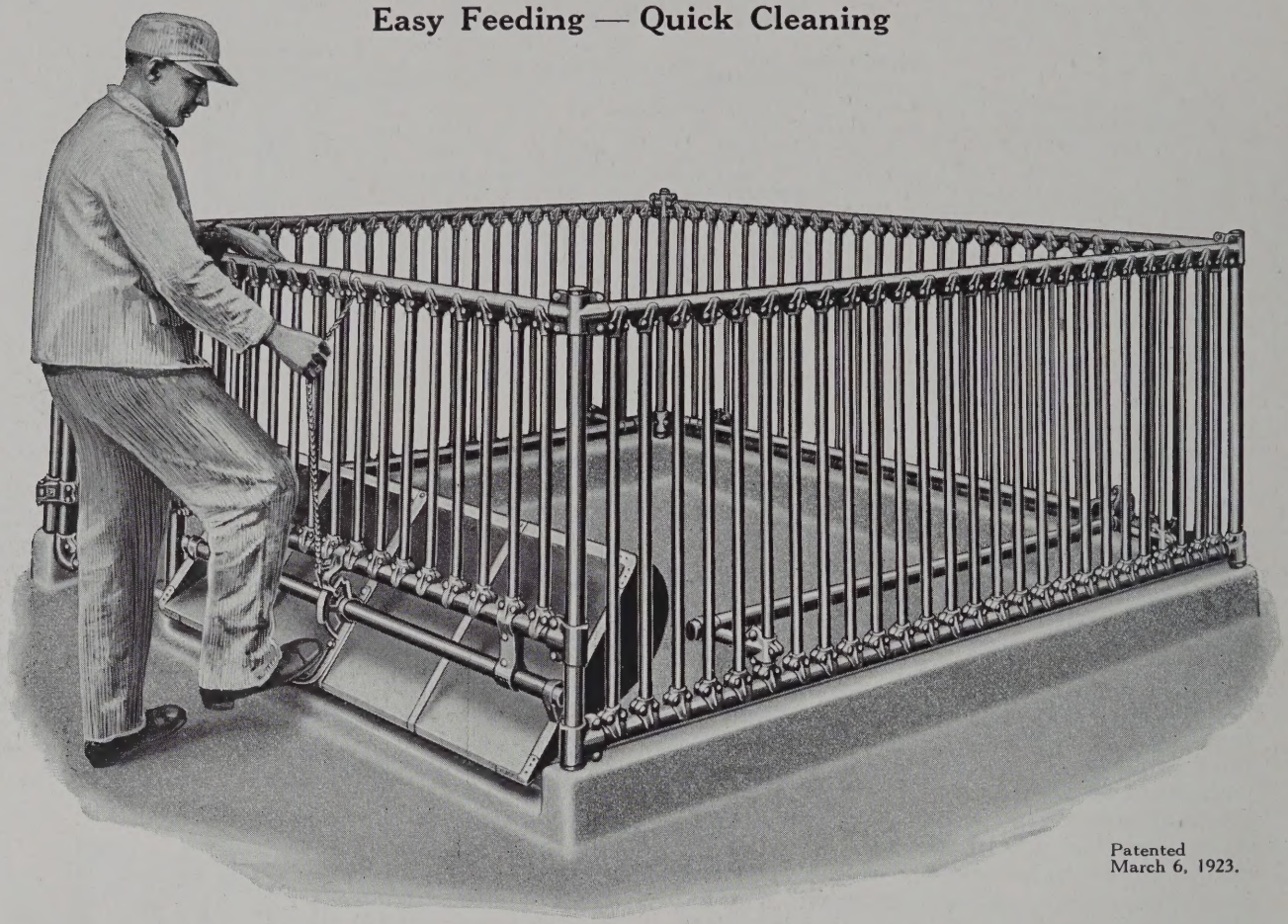
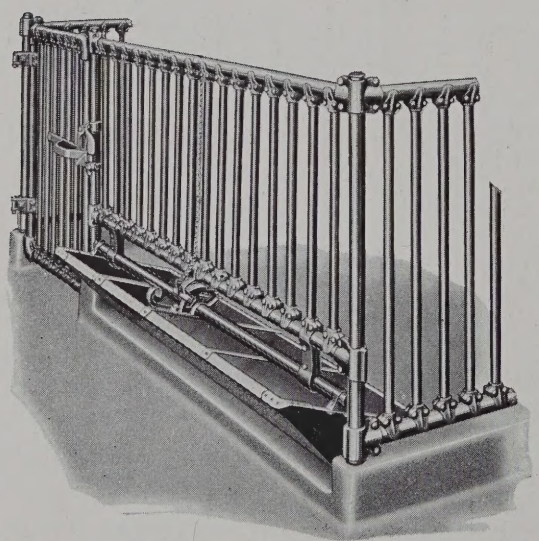
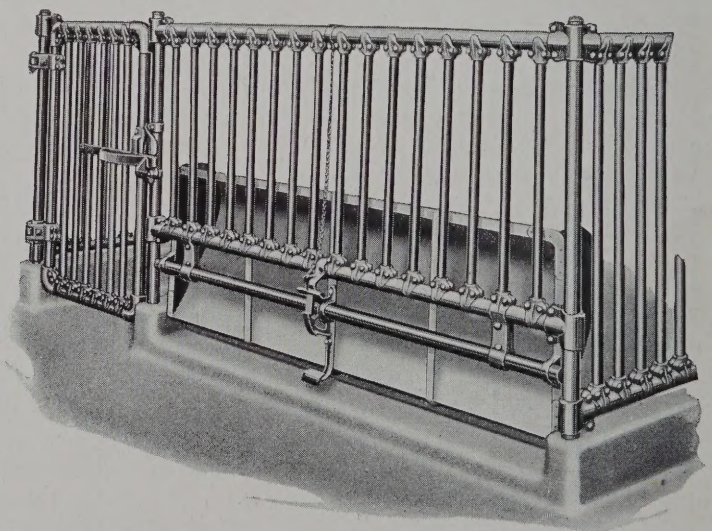


Fig. 1386. Showing the Ease with which the Trough is Tilted for Cleaning.



Cut No. 1387. Trough automatically locked down. Feed is poured in from alley side. Hogs cannot interfere with work.



Cut No. 1388. Trough automatically locked up out of way when not in use. Pigs cannot root it around or break it. Trough is self cleaning.

Louden Hog Pen With Tilting Metal Trough

Easy Feeding — Quick Cleaning

Specifications

Hog Pen Panel: For complete specifications see page 156. The type of feeding trough selected, governs the specifications of the front panel over it, but otherwise the construction is identical in all Louden Hog Pens.

Metal Trough: Depth, 6½ in. Width, 19 in. Made in 3 and 5 ft. lengths. Constructed out of 18 gauge galvanized iron. Reinforced around edges by heavy angle iron and at intervals across the top with bar iron. All corners of trough reinforced with malleable corner irons. Trough is automatically locked in three positions: down, partially elevated, and entirely up against the front panel. Trough is clamped to both ends of pivot pipe by means of heavy connections. Capacity per running foot, 2½ gal. Weight per running foot, 8½ lbs.

Stationary Panel Over Trough: Fillers ⅞" O. D. steel tubing, 2 ft. long. Frame of panel and pivot rail 1⅝" O. D. steel tubing.

The Louden Metal Trough shown on opposite page is without a doubt one of the greatest improvements ever made for the modern hog pen. It embodies *every feature* that is essential for ideal feeding and yet entirely overcomes all of the objectionable points so commonly found in the ordinary metal trough.

This ideal trough has a stationary panel over it, yet is so designed that feed can be poured in from the alleyway without interference from the hogs. The construction affords every convenience in feeding that is possible with a swinging panel. At the same time it eliminates the trouble and bother that sometimes occurs when having to tilt a swinging panel into proper position before feed can be poured in, and because the stationary panel is always rigidly connected to the remainder of the pen there is no chance of it ever getting out of order.

Cut No. 1387 shows the trough down for feeding. In this position it is firmly locked in place so that hogs cannot root it around, upset it, tilt it, or in any way spill the contents—it is hog proof in every detail.

But in addition to the convenience in feeding and the use of stationary panel in front, the Louden Metal Trough can be cleaned out quickly and easily. When this is desired the attendant simply releases the latch by pulling on the chain, places his foot on the pedal and tilts the trough to the half-way position where it automatically locks, as is illustrated in Fig. 1386. In this position it is just a minute's job to thoroughly clean it, and the trough is so designed that the rinse water flows out into the gutter along the edge of the feed alley, leaving the pen floors absolutely dry—a valuable aid in maintaining sanitary quarters.

When not in use the trough may be tilted upright against the front panel, keeping it absolutely clean for the next feeding and leaving all the pen floor space clear for the hogs. This is shown by Cut No. 1388.

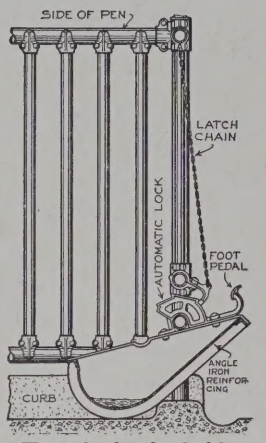
The design of the foot pedal is such that the foot secures a natural and firm hold on it. Moreover, it is so shaped and placed that it is impossible to get the shoes wet when dumping the contents of the trough. The small drawings on this page illustrate this feature plainly.

Owing to the shape of the Trough, liquid will not slop over the inner edge onto the pen floor. Thus it eliminates an unsanitary feature that is very objectionable.

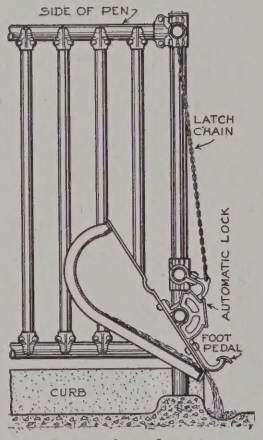
The Louden Easy-Feeding, Quick-Cleanout Trough is constructed to give unusually long service. It is made of heavy galvanized iron throughout, strongly reinforced with angle iron on both ends and both sides as well as bars placed at intervals across the top. In addition, the middle and both ends are rigidly clamped to the 1⅝ inch pivot pipe above it that extends the length of the trough.

From every standpoint the Louden Easy-Feeding, Quick-Cleanout Trough is exceptionally practical. Hog men who have it in use are unanimous in saying it is the best arrangement for feeding ever devised. So easy does it work and so simple is the mechanism that it must be operated to be fully appreciated.

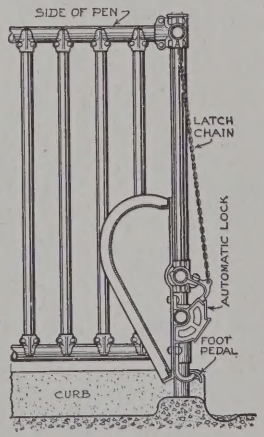
The small cross sectional drawings on this page show the detail of the locking device, shape of trough and the different positions in which it is held latched.



Trough firmly held down for feeding.



Partly up for cleaning. Rinse water runs in alley gutter.



Up out of the way when not in use —self cleaned.

Folding Pig Guards for Louden Hog Pens

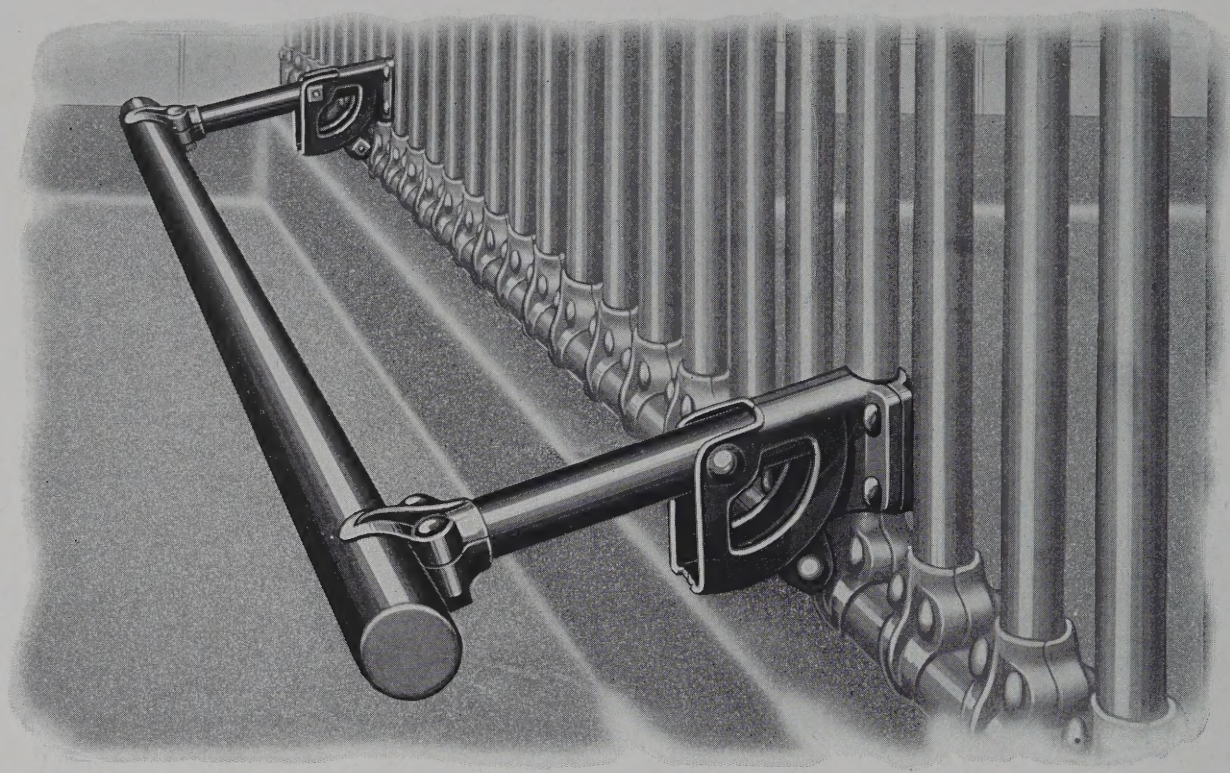
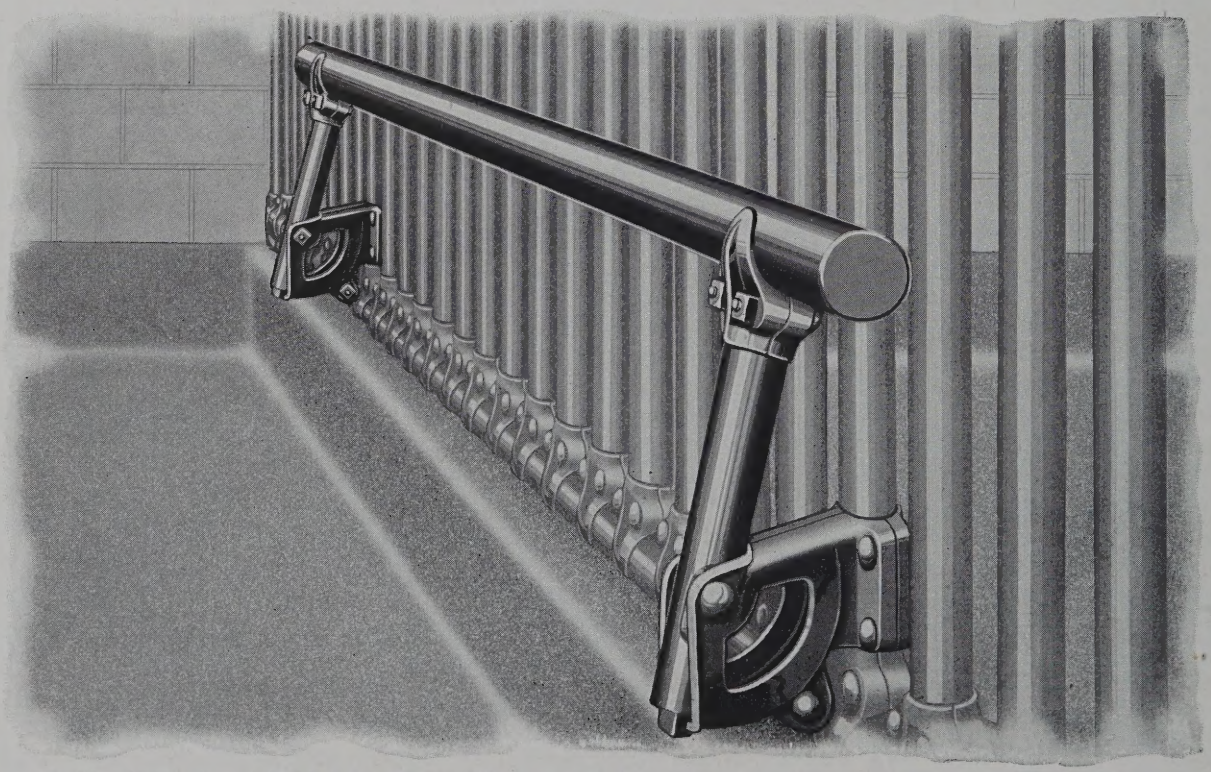


Fig. 1389—Pig Guard Down for Protecting Small Pigs from Getting Laid On.



Cut No. 1390—Guard Folded Up Out of Way, Giving All of Pen Space to Pigs When They Become Larger.

Folding Pig Guards for Louden Hog Pens

Patented March 7, 1922

Specifications

Rail is automatically locked up or down by means of heavy compression spring placed in pipe casting.

Castings made of certified malleable iron. Distance from center of panel to center of guard rail, 10 inches. Rail may be set 8 inches from floor or higher if desired.

Horizontal rail made of high carbon open-hearth tubular steel, and is 1⅝-inch in outside diameter.

Guard should extend around three sides of pen. Is not needed in front because of feeding trough.

Each guard rail weighs approximately 3 pounds per running foot.

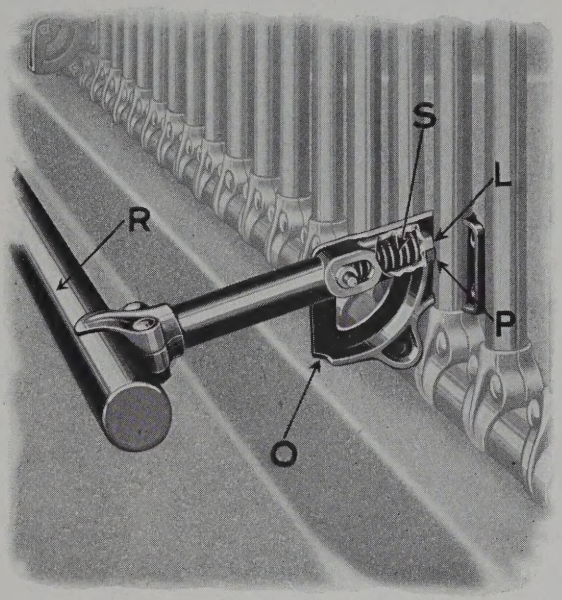
Pig guards are a very necessary part of every hog pen. When the sow lies down the guard keeps her from crushing the little pigs against the side of the pen or walls of the house. The space underneath the guard is a protected area for the small pig to run into and avoid danger.

However, after weaning time the guard is not necessary because the pigs are of such size that there is no longer the danger of crushing them. In fact, at this stage, the guard projecting out into the pen is apt to be in the way, in that it takes up floor space that the rapidly growing pigs require. Therefore, in order to get the greatest efficiency out of the hog pen the guard must fold up out of the way when not needed and permit the use of every foot of floor space within the pen.

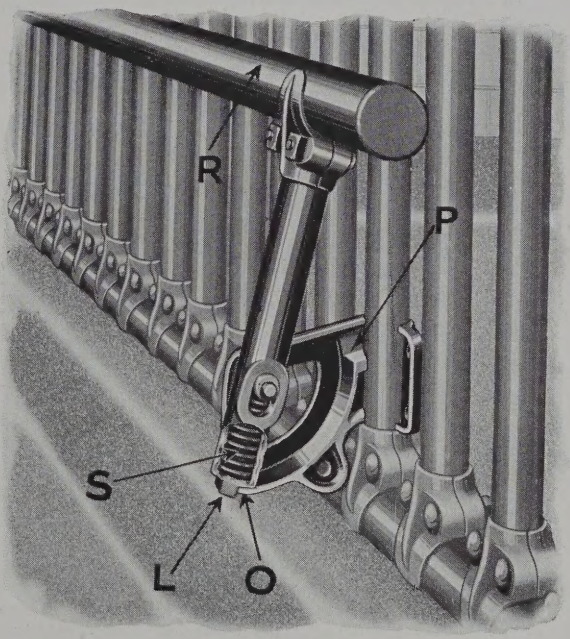
The Louden Pig Guard illustrated on opposite page meets every requirement and more. When down in place as in Fig. 1389 it projects out from the panel 10 inches and is 8 inches above the floor or higher if desired because it is adjustable up or down on the panel. It is heavily constructed throughout and thus forms a perfect protection regardless of the size of sow occupying the pen.

When not in use the guard folds up against the panel and automatically locks in place out of the way, as is shown by Cut No. 1390.

And it is more than the ordinary guard because it can be folded up or down so easily and quickly—yet it is held absolutely rigid in either position and the craftiest old sow cannot operate it.



Cut 1391—Detail showing how guard is held down.

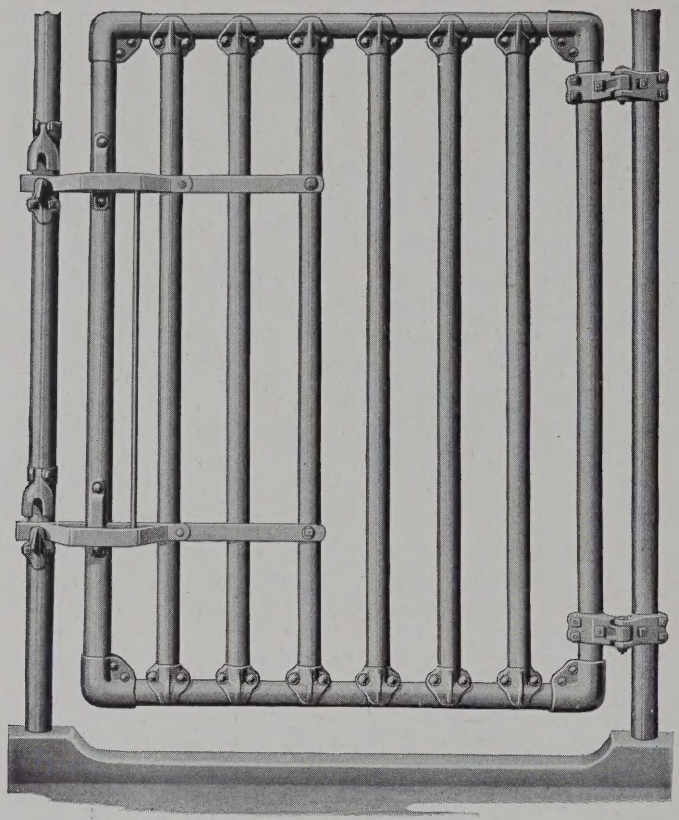


Cut 1392—Detail showing how guard is held up.

Cut No. 1391 is a detail showing one of the castings removed and the inner end of the connecting arm cut away to illustrate the simple yet positive manner in which this guard operates. When the guard is down a heavy compression spring S firmly holds the lug L in the pocket P. When it is desired to fold the guard up out of the way the attendant simply takes hold of the rail R—pulls it toward himself until the lug L is disengaged from the pocket P and turns the guard up against the panel at which point the compression spring S again automatically forces the lug L into the pocket O, thus holding the entire guard rigidly in upright position. Cut No. 1392 is a detail view which clearly illustrates this feature.

The guard can be tilted either up or down in five seconds' time and entirely overcomes the nuisance of having to hunt up a monkey wrench in order to loosen several bolts that are rusted and stuck and again tighten them each time the rail is moved—the method formerly used for performing this work. The Pig Guard carries out the Louden idea of simplicity in design, strength and durability in construction, and extreme ease of operation.

Louden Pen Gates and Pen Fittings



Louden Bull Pen Gate

Specifications

Bull Pen Gate: Made of 1⅝ in. O. D. Steel Tubing throughout. Hinge and Latch Posts extend into solid cement and are connected by arch rail above. Hence, the opening is solid, strong and rigid. Hinges are Certified Malleable Iron and are adjustable to allow a perfect fit even should there be a slight variation in leaving the proper width opening. Latch is double—the two arms being connected by a heavy steel rod, work in unison. Each Latch arm is made out of 5/16"x1¼" steel bar doubled back. Latches automatically lock as gate swings shut and can be unlocked only by human hands. Gate is 3 ft. 5 in. wide by 4 ft. 8 in. high. Width of gate opening 3 ft. 10 in. in clear. Weight of gate 128 lbs.

Cow Pen Gate: Frame is 1⅝ in. and Fillers are 1 1/16 in. O. D. Steel Tubing. Hinges are Certified Malleable Iron and are adjustable to permit a perfect fit. Latch Bar is heavy 5/16 in. x 1¼ in. Steel Bar doubled back. Latch automatically locks as gate swings shut. Latch catch is animal proof. Gate is 2 ft. 11 in. wide by 4 ft. high. Width of gate opening 3 ft. 4 in. in the clear. Weight of gate 84 lbs.

Calf Pen Gate: Frame is 1⅝ in. and Fillers 1 1/16 in. O. D. Steel Tubing. Hinges are Certified Malleable Iron and are adjustable to permit a perfect fit. Latch Bar is heavy 5/16 in. x 1¼ in. Steel Bar doubled back. Latch locks as gate swings shut. Latch Catch is animal proof. Gate is 2 ft. 5 in. wide by 3 ft. 4 in. high. Width of gate opening 2 ft. 10 in. in the clear. Weight of gate 58 lbs.

Hog Pen Gate: Frame is 1⅝ in. and Fillers are ⅞ in. O. D. Steel Tubing. Hinges are Certified Malleable Iron and are adjustable to permit a perfect fit. Latch Bar is heavy 5/16 in. x 1¼ in. Steel Bar doubled back. Latch automatically locks as gate swings shut. Latch is hog proof. Gate is 2 ft. wide by 3 ft. 4 in. high. Width of gate opening 2 ft. 4 in. in clear. Weight, 47 lbs.

The Tubing used in all Louden Pen Gates is High Carbon Steel made by the Open Hearth (not Bessemer) process. It is the identical steel used in structural building—in every kind of steel work where quality is a first requirement. See page 91. The fittings are made out of Certified Malleable Iron—iron that is strong, tough and durable.

The Hinge and Latch Posts on all Louden Gates project down into solid cement instead of being attached only to surface anchors. Hence, the gate as well as the panel in which it is located, is exceptionally strong and rigid. All Louden gates are animal proof—an assurance of safety. They are neat, clean and convenient.

The Louden Improved Alley Gate

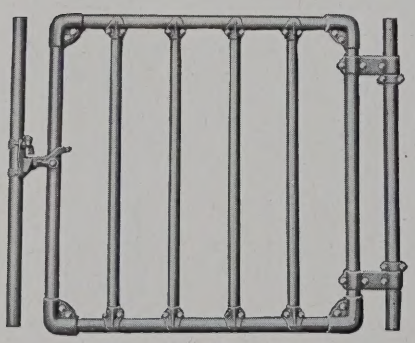


Fig. 1171 Alley Gate

Specifications

The Standard Sizes of Alley Gates are: 3 ft. 4 in. high by 2 ft. 11 in; 3 ft. 5 in. and 3 ft. 11 in. wide, out to out. These sizes are suitable for alleys 3½, 4 and 4½ feet wide on center of hinge and latch posts. Other sizes will be made to order.

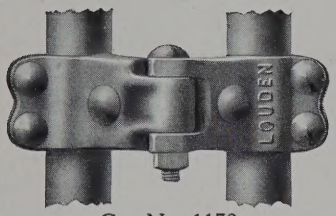
Sizes of Tubing: The frames are made of 1⅝ in. and the fillers are 1 1/16 in. O. D. tubing. The fillers are spaced on centers 8 to 9 inches apart.

Weights: With latch and hinges and two collars, which go with the gate, the 2-foot 11-inch size weighs 57 pounds; 3-foot 5-inch size 65 pounds; and 3-foot 11-inch size 73 pounds.

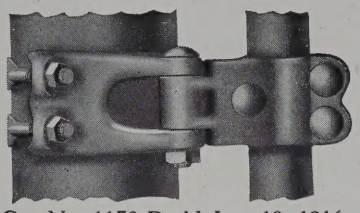
In ordering be sure to specify the outside diameter of posts. If different sizes are used, give size to which the gate is hinged and also size of post to which the latch is connected. If square posts are used so state in order.

Fig. 1171 is the Louden Improved Alley Gate with vertical fillers and a latch that will slam shut from either side and never swing past. This latch is absolutely stock-proof and no cow or horse can by any possibility open it. It is furnished with hinges which will swing both ways. Very convenient and useful.

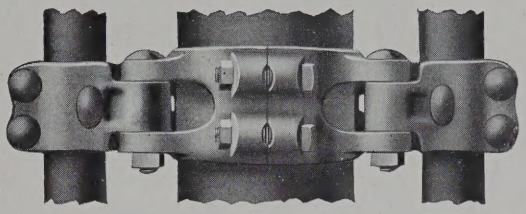
Louden Adjustable Gate Hinges



Cut No. 1172



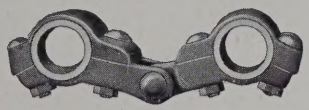
Cut No. 1173 Pat'd Jan. 18, 1916



Cut No. 1174

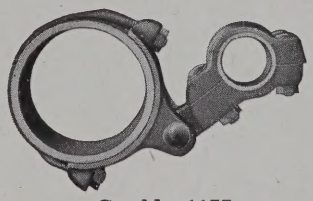
The above are views showing three different ways of using the Louden Adjustable Center-Pivot Gate Hinge. Cut No. 1172 shows the use of the hinge with 1⅝ or 1⅞ O. D. tubing. Cut No. 1173 shows the hinge attached to a large post or column, and Cut No. 1174 shows a double hinge attached to a large post or column to hang a gate on each side of the column. All hinges are made out of Certified Malleable Iron.

The hinges can be clamped to the posts at different angles as shown by Cut Nos. 1175 and 1176, to vary the distance between the gate frame and the post to which it is hinged, to suit requirements. This is an important feature. If the space between the gate posts should happen to be a little too wide or too narrow an adjustment of 2½ inches can be made in setting the hinges, so the latch on the gate and the catch on the post will always be correctly adjusted.



Cut No. 1175

Cut No. 1176



Cut No. 1177

These figures are sectional views showing the adjustment of the hinges. Cut No. 1175 shows the hinge extended or widened and Cut No. 1176 shows it contracted or narrowed. Cut No. 1177 shows the attachment to a large post by means of clip bolts which can also be adjusted as explained. When a gate is hinged on each side of a large post, as shown by Cut No. 1174, the hinge castings for the large post are bolted together as shown, and by using longer bolts on one side and shorter bolts on the other side the castings may be adjusted on the post. The center pivot permits these adjustments and also *offsets* the hinge so the gate can be opened clear back against the panel of the pen which is another important feature not possessed by other kinds of hinges. Of all other gate hinges for tubular posts or columns, none are so strong or so convenient in use, or have the desirable adjusting features of the Louden Hinge.

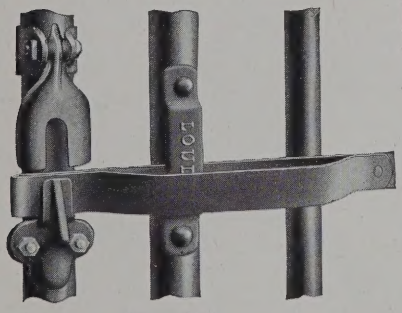


Fig. 1178
Patented May 16, 1916

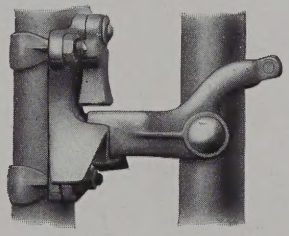


Fig. 1179
Pat'd April 18, 1916

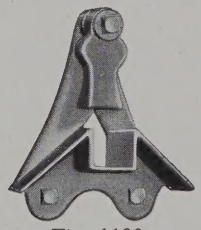
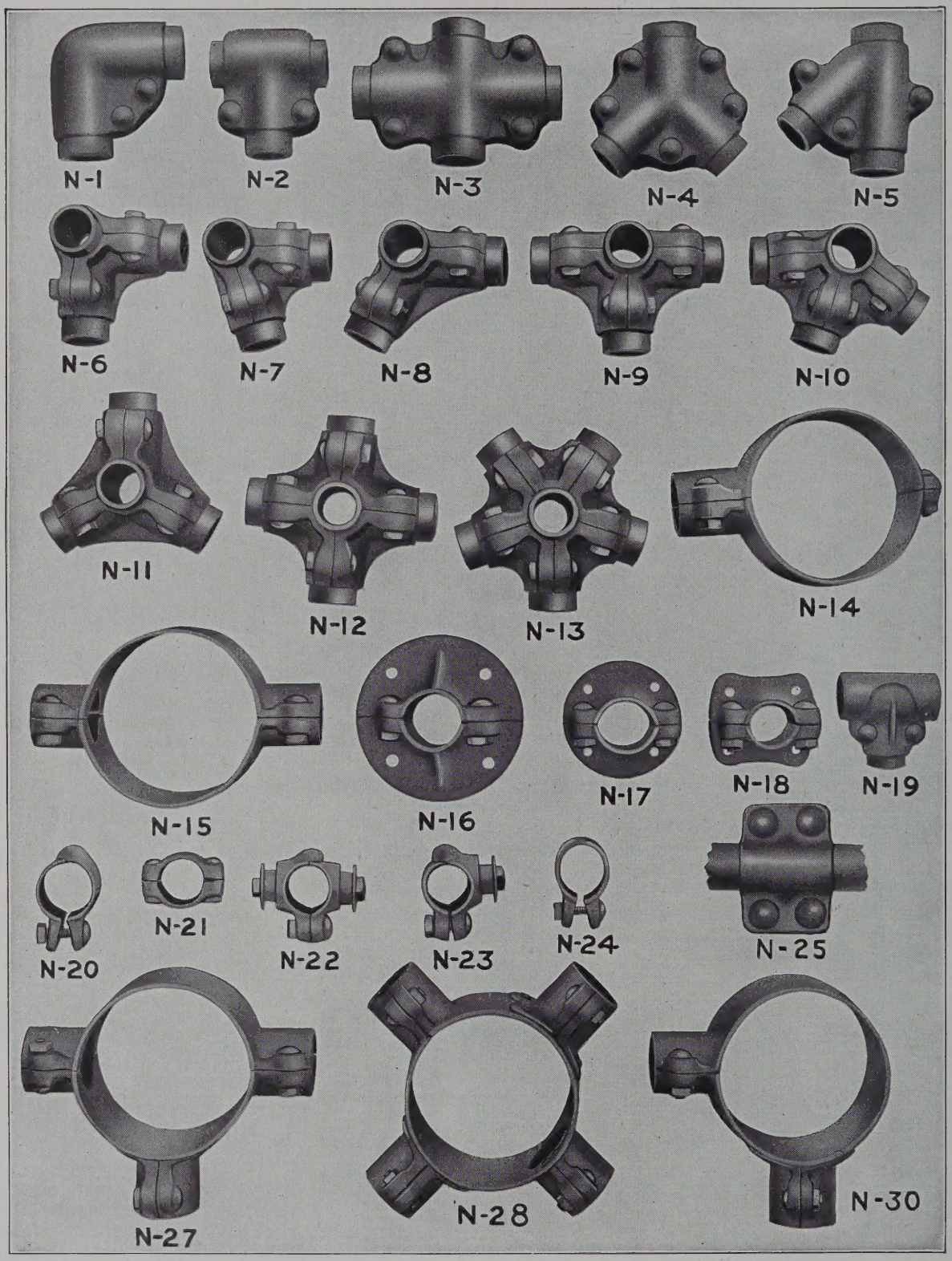


Fig. 1180
Patented April 18, 1916

Louden Safety Gate Latches

Fig. 1178 is a detailed view of the Louden One-Way Safety Gate Latch used on our animal pens. It is provided with a Latch Guard which swings out over the latch as soon as it drops into the catch and prevents it from being lifted cut of the catch until the keeper is pushed back out of the way. No animal can open the latch when it has this Latch Guard. Fig. 1179 is a detailed view of our Two-Way Safety Latch for alley gates which swing in both directions. The Latch Guard is pivoted above the notch and will swing to one side or the other enough to allow the latch to slide up the catch from either side and drop into the notch, but not enough to permit it to pass clear through. To unlatch the gate in either direction the keeper is pushed to the other side. Fig. 1180 is a Two-Way Safety Catch for a square wooden post or a wall.



A Few Louden Dairy Barn Equipment Fittings — Plate 15

We have over 1500 Barn Equipment Patterns and can equip any kind of barn.

Corner Couplings N-6 to N-13, Inclusive, Patented August 17, 1915

Some of the Louden Dairy Barn Fittings

In ordering from plate on opposite page, be sure to give the Plate Number (15) as well as the names and the letters and figures attached to the parts. Also give outside size or sizes desired. All measurements of fittings are outside diameters. See table of inside and outside diameters of tubing given on page 174. Patented September 20, 1910, and August 17, 1915.

Specifications

N-1, is our improved Single Piece Elbow. It is made in two sizes, standard for 1⅝-inch, and large for 1⅞-inch O. D. tubing. In all couplings the 1⅞-inch size can be used for 1⅝ inch by bushing.

N-2, Improved Interlocking Tee-Coupling, made in three sizes, standard for 1⅝-inch, and large for 1⅞-inch O. D. tubing; also for 1⅞-inch O. D. heads and 1⅝-inch O. D. Tees. (See Fig. 933, page 98.)

N-3, Improved Cross Coupling, made in three sizes, standard, large and small for 1⅝, 1⅞ and 1 1/16-inch O. D. tubing.

N-4, Inverted Y-Coupling, one size, head tubing, 1⅞-inch O. D., legs 1⅝-inch O. D.

N-5, Side or Angle Tee-Coupling (45 degrees), one size, head for 1⅞-inch and Angle for 1⅝-inch O. D. Tubing.

N-6, Right Angle Corner Coupling, two sizes, standard for 1⅝-inch O. D. and large for 1⅞-inch O. D. tubing.

N-7, Seventy-two (72) degree Corner Coupling, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-8, One hundred and twenty (120) degree Corner Coupling, two sizes, for 1⅝-inch and 1⅞-inch O. D. Tubing.

N-9, Straight Side Partition Coupling (90 degrees), two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-10, Angle Side Partition Coupling, the sides being disposed at an angle of 144 degrees and the partition being set at an angle of 72 degrees to the sides, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-11, Three Piece Center Partition Coupling, each set at an angle of one hundred and twenty (120) degrees to the other, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-12, Four-Piece Center Partition Coupling, each set at an angle of 90 degrees (right angles) to the other, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-13, Five-Piece Center Partition Coupling, each set at an angle of seventy-two (72) degrees to the other, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-14, Tee-Coupling for large posts or columns, eighteen sizes. The smaller or Tee ends are made for 1⅝-inch and 1⅞-inch O. D. tubing. The larger or head ends are made for 2⅜, 2⅞ or 3, 3½, 4, 4½, 5, 5½ or 5⅝, 6 and 6⅝-inch O. D. posts or columns. *In ordering give sizes of all connections.*

N-15, Cross Coupling for large posts or columns, eighteen sizes, smaller ends for 1⅝-inch or 1⅞-inch O. D. tubing, center for 2⅜, 2⅞ or 3, 3½, 4, 4½, 5, 5½ or 5⅝, 6 and 6⅝-inch O. D. posts or columns. *Give Sizes of all connections.*

N-16, Large Floor Flange for 1⅞-inch O. D. tubing; will fit 1⅝-inch O. D. tubing by bushing.

N-17, Wall or Flat Post Flange, two sizes, for 1⅞-inch and 1⅝-inch O. D. tubing.

N-18, Wall or Flat Post Flange, two sizes, for 1 5/16-inch and 1⅝-inch O. D. tubing.

N-19, Grip Clamp, made in nine sizes, the O. D. of the head tubing being given first and of the Tees, second. 1⅞x1⅝; 1⅞x1 5/16; 1⅞x1 1/16; 1⅝x1⅝; 1⅝x1 5/16; 1⅝x1 1/16; 1⅝x1⅞; 1 5/16x1 1/16 and 1 1/16x1 1/16-inch O. D. tubing. (For description of Grip Clamps, see page 168.)

N-20, Interlocking Stanchion Holder and Manger Spring Holder, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-21, Collar, three sizes, for 1⅝-inch; 1⅞-inch and 2⅜-inch O. D. tubing.

N-22, Double or Center Pivot for Manger Hinges, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-23, Single or End Pivot for Manger Hinges, two sizes, for 1⅝-inch and 1⅞-inch O. D. tubing.

N-24, Pressed Steel Clip, for throat chains, stanchion side chains and "Hold Shut" for Gate Latch; three sizes, for 1 5/16-inch, 1⅝-inch and 1⅞-inch O. D. tubing.

N-25, Brace Rod Clamp for Manger Divisions, for 1 1/16-inch O. D. tubing.

N-27, Right Angle Side Partition Coupling for large posts or columns with built-on clamp; sixteen sizes, small ends for 1⅝-inch and 1⅞-inch O. D. tubing. Center for 2⅞ or 3, 3½, 4, 4½, 5, 5½ or 5⅝, 6 and 6⅝-inch posts or columns. This is the same as N-15 with a built-on clamp added.

N-28, Right Angle Center Partition Coupling for large posts or columns, with built-on clamps. Sizes the same as N-27. *Give sizes of all the parts in ordering.*

N-29, (Not illustrated in plate 15). Acute Angle Cross Coupling for large posts or columns, with built-on clamps set at an acute angle to the Tee-Heads and to themselves. Sizes the same as N-27. Built-on clamps may be placed on the other side of coupling if desired, making as many as 6 small clamps, 2 integral and 4 built-on. If necessary, the angles of built-on clamps may be varied to some extent. *In ordering give sizes of all the parts and the angles of built-on clamps.*

N-30, Right Angle Corner Coupling for large posts or columns with built-on clamps for 1⅝ or 1⅞-inch O. D. tubing. It is like N-14 with one built-on clamp. Same size as N-27.

Louden Parallel Clamps

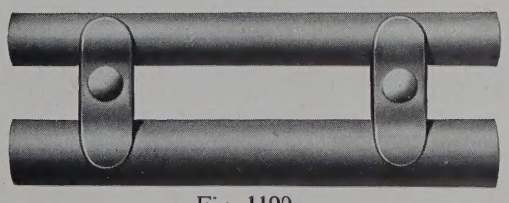
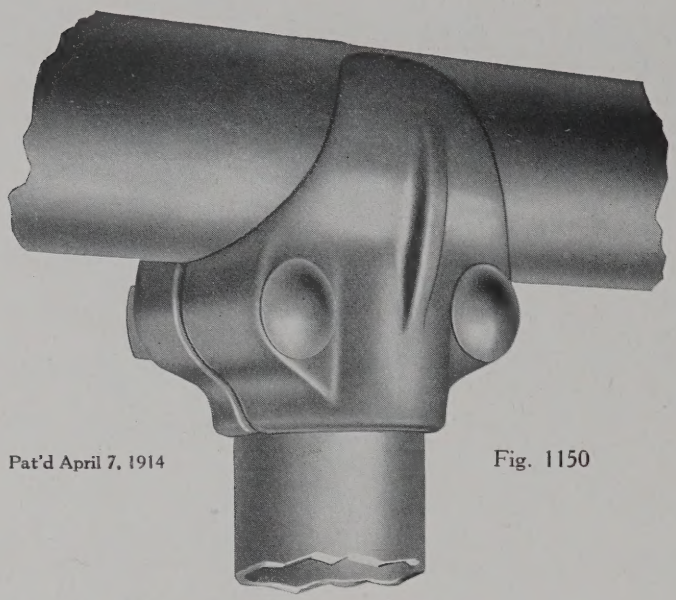


Fig. 1190

These Clamps are used for attaching water pipes or air pipes for milking machines, to the top-rails of stalls, or for any other purpose where two pipes or pieces of tubing are to run parallel with each other. There are four sizes, 1 5/16x1⅝ and 1⅞ O. D., and 1 1/16x1⅝ and 1⅞ O. D. The two former will connect an inch pipe with 1⅝ or 1⅞ tubing. The two latter will connect a ¾-inch pipe with the same sizes of tubing. Clamps hold rigidly all pipes to which they are attached.



Pat'd April 7, 1914

Fig. 1150

Louden Grip Clamp

Fig. 1150 is a good representation of our Grip Clamp referred to in the specifications of our 959 Cow Stalls and extensively used in all Louden animal pens, hundreds of thousands of them being used for this purpose. It is the smoothest, neatest and best clamp of the kind ever made. It requires no holes to be drilled in the tubing. Only two bolts are used which are so located that they will exert *equal pressure* on all the adjacent parts of the tubing—a feature that is fully covered by our patent.

We make 9 sizes, outside diameter of the head tubing being given first. Thus there is a proper size for every requirement.

No. 1 ..... $1\frac{7}{8}$x$1\frac{5}{8}$	No. 5 ..... $1\frac{5}{8}$x$1\frac{5}{16}$
No. 2 ..... $1\frac{7}{8}$x$1\frac{5}{16}$	No. 6 ..... $1\frac{5}{8}$x$1\frac{1}{16}$
No. 3 ..... $1\frac{7}{8}$x$1\frac{1}{16}$	No. 7 ..... $1\frac{5}{8}$x $\frac{7}{8}$
No. 4 ..... $1\frac{5}{8}$x$1\frac{5}{8}$	No. 8 ..... $1\frac{5}{16}$x$1\frac{1}{16}$
No. 9 ..... $1\frac{1}{16}$x$1\frac{1}{16}$	

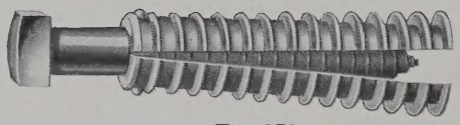


Fig. 879

Fig. 1073

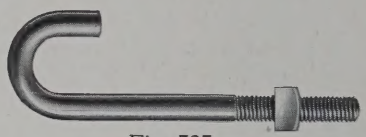


Fig. 727

Anchor and Hook Bolts

Fig. 879 is an Expansion Bolt which we use to make attachments to brick and hardened cement work.

Fig. 1073 is a smaller view of an Anchor Bolt to make attachment to either green or hardened cement work. It is provided with a Helical Steel Lining and is set in a hole which is bored with a common auger bit in green cement or drilled with a star drill in hardened concrete, the hole and the lining being filled with soft cement before inserting. The bolt can be readily taken out or replaced when the cement hardens, the lining remaining.

Fig. 727 is a Hook Bolt to fasten stanchions to wood top-rails.

We furnish only the sizes necessary to attach the fittings used with our equipments.

Louden Inside Pipe Coupling

Fig. 1370 gives three views of our new Inside Pipe Coupling—the upper being a detached view, the center showing one end inserted in the end of a pipe, and the lower view showing the ends of two pipes coupled together. With this coupling random lengths of pipe can be used for the top rails of our Cow Stalls and be *coupled together anywhere* instead of having to cut the pipes so the joints will come where the stall posts are connected to the top-rail. It can also be used in other places where it is desirable that the outside of the pipe be left entirely smooth.

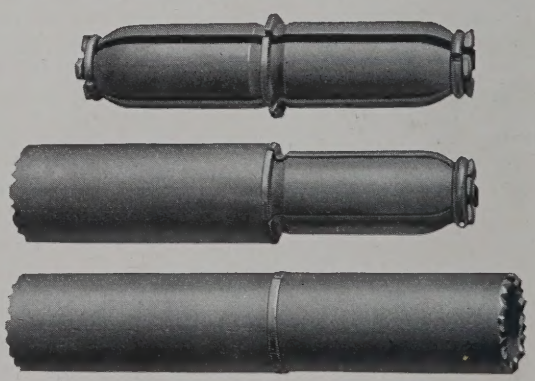
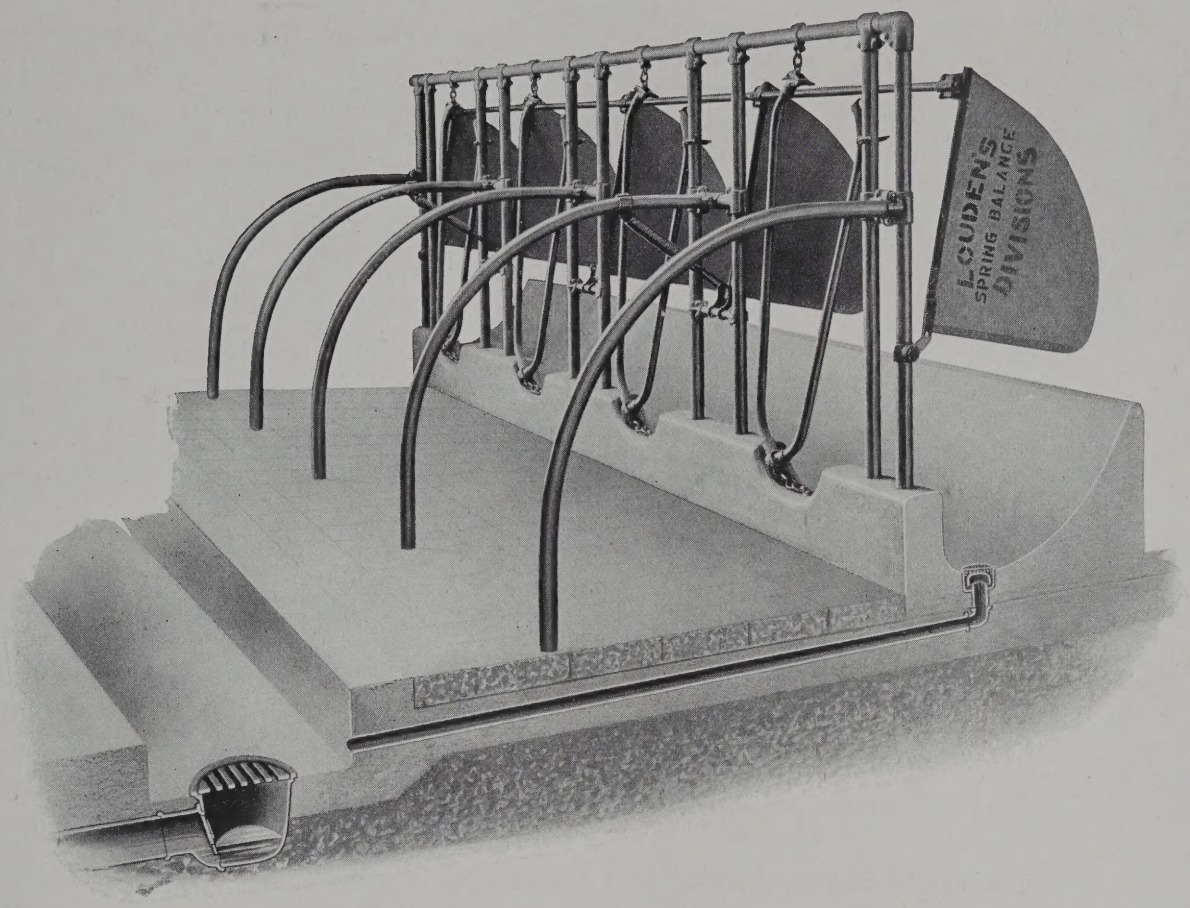


Fig. 1370 (Patented June 29, 1920)

The coupling consists of four pieces of certified malleable iron having their ends held together by rings as shown, with four strong expansion springs inserted between them, so that when the coupling is driven into the ends of the pipe the springs will hold the pieces firmly in contact with the inside of the pipe, thus making a substantial coupling which is also neat in appearance and which leaves the pipes smooth on the outside so that other attachments can be connected, without any interference.



Louden Manger and Gutter Drains

Specifications

Manger Drains, are 4½ inches wide at top and 4¾ inches deep with outlet to fit either 1½-inch or 2-inch gas pipe, also 3-inch Cast Iron Soil Pipe or Sewer Tile, and are furnished with bell trap strainer and brass cover.

Weight: 5¼ pounds. Drain Pipe is not furnished.

Gutter or Floor Drains, are 8 inches wide at top and 9 inches deep with outlet to fit either a 4-inch Cast Iron Soil Pipe, or Sewer Tile, and are furnished with both solid and perforated covers and equipped with handy cleanout plug.

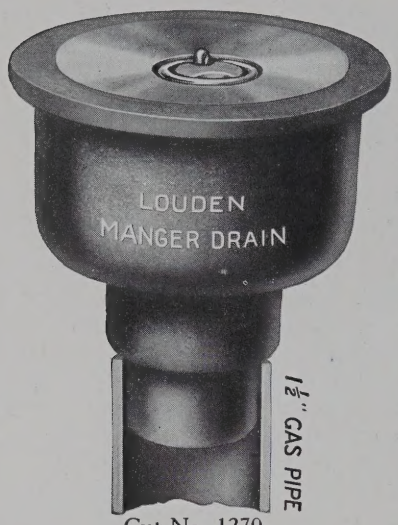
Weight, of complete drain, 25 pounds.

Proper drainage of the barn is second in importance only to proper lighting and ventilation. In many barns the drainage is so poor that it offsets to a great extent the advantages of proper ventilation facilities. In addition to the sanitary advantages of proper drainage, the saving of the liquid manure makes the system an economy. Land to which liquid manure is applied will very shortly return in increased crops the entire cost of a good drainage installation.

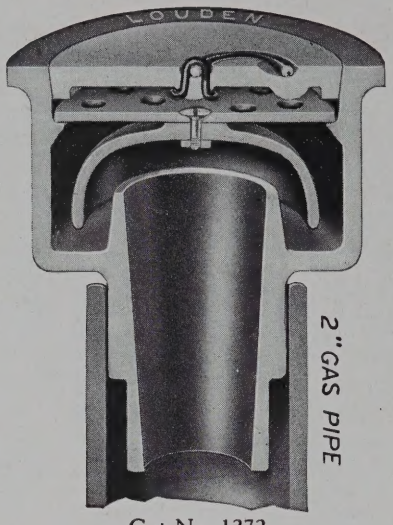
The illustration above shows an excellent method of barn drainage. In the gutter at the left of the picture is a cross section of our floor, or gutter drain and in the manger to the right our manger drain. As can be seen in the illustrations, on this and on the next page, both the gutter drains and the manger drains are equipped with water seal traps so that no odors or gases can escape back into the barn. Each is equipped with strainers which prevent trash from entering and clogging up the drain pipes.

Manger Drains are made of cast iron throughout with the exception of the close-fitting, water-tight brass lid. This lid has a perfectly milled seat, the same as is found on valves of automobiles and gasoline engines, which are recognized for their perfect fit. The lid, while easily removed, closes the opening air tight by its own weight.

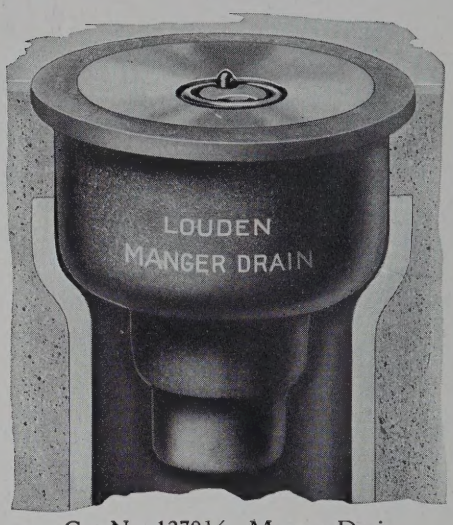
The lifting rings on the brass lids are counter sunk, so there is no danger of the lid being displaced by rooting with the nose. While fitting snugly, the lifting ring is so arranged that the lid can be removed instantly with the fingers, no tools being required.



Cut No. 1270
Manger Drain in 1½-inch Gas Pipe



Cut No. 1272
Section of Manger Drain in 2-inch Pipe



Cut No. 1270½ Manger Drain
Fitted to 3-inch Drain Tile

Manger Drains Fit Different Size Outlets

Cut Nos. 1270, 1272 and 1270½ show how Louden Manger Drains fit different sizes of drain pipe. The manger drain pipe should never be less than 1½-inch pipe, and our drain heads will fit that size; also a 2-inch pipe or 3-inch soil pipe or tile. Illustrations show how far below the manger floor level the drain pipe may rise to allow for proper installation. The advantage of having a drain for the mangers is great. With the drain closed with the close-fitting cap, the animals may be watered conveniently, and the mangers scrubbed out as often as desired.

Big Capacity—Easily Cleaned—Gutter Drain

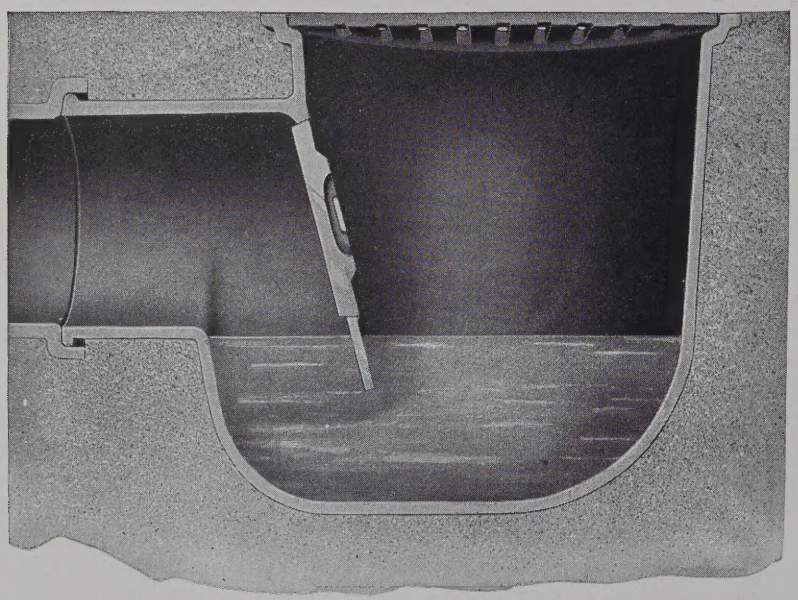


Fig. 1309
Cross Section of Louden Gutter Drain Showing it Imbedded in Floor and Fitted to 4-inch Tile or Soil Pipe

Illustration shows a cross section of the new Louden Gutter and Floor Drain. The bowl is so large that it will hold a vast amount of sediment before cleaning out is required. However, whenever this becomes necessary the Louden Drain is so open and roomy that it's just a moment's job. With so many of the smaller drains this is a slow tedious job and worst of all they fill up so often.

With the Louden Drain the soil pipe or tile connects at the side. It runs along only two inches below the floor surface. If by chance the soil pipe should clog up—away back from the drain—all that is necessary is to pull out the brass cleanout plug and by means of a fishing pole or long stick remove the obstruction.

Another important feature—the brass cleanout plug is not threaded but instead is beveled so that it fits very snug and tight. It is held in place like an ordinary stopper, hence is easy to remove and because it is brass will never rust or cause trouble in taking out.

This is also an excellent drain for garages or other buildings of any sort where drains are required.

The Louden Guarantee

We guarantee all our products to be exactly as herein represented, and to perform the work for which they are intended in a satisfactory manner. Also, that the material and workmanship is free from defects, and we agree to replace without charge anything which may be defective.

This has been our practice during our fifty-six years of building Barn Equipments, and upon this policy our extensive, world-wide business has been built. Those who know the Louden Company or the Louden goods do not require any formal guarantee. They KNOW that everything made by us will be FIRST CLASS IN EVERY RESPECT.

Our most enthusiastic customers are those who have used other equipments and have LEARNED FROM EXPERIENCE the superior merits of ours. We want the prospective purchaser to ask the men who use our equipment and to find out for himself which is THE BEST from every point of practical service and genuine utility.

We invite a thorough investigation, and solicit a trial with other equipments, whenever practical, because we know that this is the best way to demonstrate the decided superiority of our goods. Our long established reputation for fair and honorable dealing, in addition to the established merits of our goods, is ample protection for every purchaser.

THE LOUDEN MACHINERY COMPANY

By R. B. Louden

President.

The Finish on All Louden Barn Equipment

All the metal work of Louden equipment will be coated with **"Silver Gray"** unless the order calls for galvanizing. The tubing and other metal parts are first carefully cleaned to free them from all scale, dirt and foreign matter and are then dipped in a heavy mixture of **"Silver Gray,"** which runs into all openings, thus coating the *inside* of the tubing and castings as well as the outside. After dipping, the parts are carried without rehandling on an overhead track into a large steam heated oven where the **"Silver Gray"** is thoroughly *baked on.* The result is a heavy coating both inside and outside, producing the very best finish—really an enamel—which is very durable.

We strongly recommend the coating of stalls and stanchions, the metal parts of mangers, and all animal pens, at least *once a year,* in order to keep them in a strictly sanitary condition. This is necessary, whether the equipment is galvanized or coated with paint, and when this is done the galvanizing will be but little advantage. Also, in view of the rough handling that usually occurs in shipping and while erecting, it will pay to give the material a coat of **"Silver Gray"** after it is erected and when the cement work is dry. No one would think of painting the material for a house before it was built and not painting the house afterward. The rough handling is sure to more or less mar the very best finish.

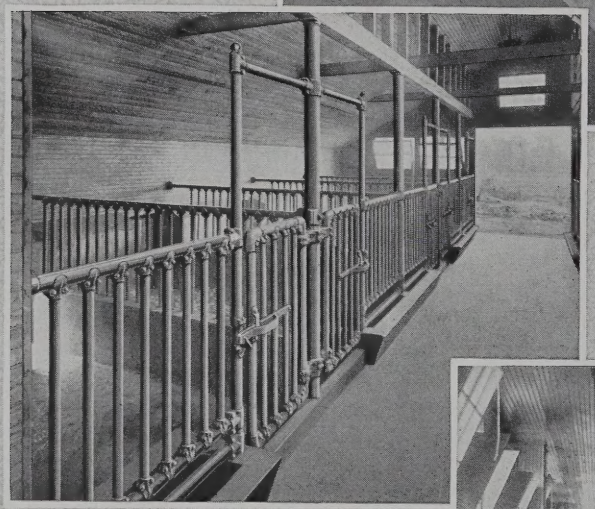
Upon order we can supply a small can of **"Silver Gray,"** sufficient to touch up the scars which may be received in shipping and handling. We also put up **"Silver Gray"** in two sizes of self-sealing cans, labeled as shown in cut, to be used for additional coating. The larger can is a half gallon, and the smaller is a quart. When properly spread, a half gallon will coat 15 to 20 stalls, and other work in proportion.

If by chance there should be any small cracks or crevices anywhere, a good plan is to fill them with some durable filler, such as iron cement, or even good putty with white or red lead added to give it body. This is advisable with any equipment—it assures complete sanitation.

Supporting columns in row of stalls makes the strongest possible installation

Longview Farms,
Lees Summit, Mo.

Steel supporting columns take up less room, are stronger, neater and more sanitary than wooden supports



Connecting Panel Fronts to Supporting Posts is possible with Louden Equipment

City of Bridgeport,
Bridgeport, Conn.

Aside from great strength, supporting posts in the Stall Row adds to the neatness of the installation

Montdale Farm,
Valparaiso, Ind.

Louden Steel Supporting Columns Strong, Sanitary and Durable

Steel Stalls and Stanchions are preferable to Wooden Stalls and Stanchions chiefly because they are more sanitary and comfortable; they are stronger and will outlast the wood; they are neater—more attractive and will let in the greatest amount of good warm invigorating sunshine. For the very same identical reasons Steel Supporting Columns for the building are preferable to wooden supporting columns.

Wood is more or less porous—it absorbs foul moisture—it holds a bad odor and smell that should not be present in a good clean well ventilated barn. Regardless of how good a piece of timber the support may be, it is bound to contain small cracks and crevices in which dangerous disease germs are liable to collect. While seemingly insignificant this offers a source for contagion that is difficult to eliminate. At best, wooden supports are hard to keep clean and sanitary and because of such, they counteract to quite a degree the clean sanitary conditions made possible by the steel stall equipment.

Louden Steel Columns have a smooth, hard, solid surface. There are no cracks—no pores. They are clean and sanitary to start with and are easy to keep in such perfect condition year after year. Hence even from the standpoint of sanitation and the better health of the herd, they are a good investment.

Louden Steel Supports eliminate every single objection common to wooden supports. They of course are much stronger than wooden posts of the same size. In fact a Louden Support 4 inches in outside diameter will carry the same load that would require a 6″x8″ wooden post. Thus the size of the wooden post would have to be three times greater. This extra size is cumbersome. It is clear out of proportion to the Steel Stalls and pens that are placed around it. It stands out so prominently that it detracts from the appearance of the entire interior. And because it is big, it shuts off much of the sunshine that comes into the room—sunshine that is needed so badly to thoroughly disinfect floors, gutters, mangers, etc.

No Replacements Necessary with Louden Posts

During the season of the year when the stock is housed most of the time, a barn floor is usually a little moist. This moisture tends to rot wooden posts out quickly at the base. As a rule they have to be replaced every few years. These replacements are costly as well as inconvenient. They interfere with regular work. They mean a lot of confusion that shouldn't be necessary. And yet neglect in caring for them might mean a lot of damage because of the load they carry.

Louden Columns are durable and lasting for in addition to being made out of steel their entire surface is further protected by a heavy coat of special enamel. They withstand the inroads of moisture at the base. They are an assurance of safety. Their first cost is the only cost. They are far cheaper in the long run than wood especially when the expense of probable replacements is taken into consideration.

Wood supporting timbers are square or rectangular—hence the sharp corners quite often cause physical discomfort, especially to the finely developed, highly producing dairy cow. Louden Steel Supports are perfectly round and smooth—there are no sharp corners to jab or irritate the animal as she occasionally brushes up against them. And cow comfort is always one of the big factors governing milk production.

Louden Steel Supporting Columns are easily and quickly set in place. They are more convenient to handle and a metal cap and base anchors them exactly where you want them. They are made in different diameters and in different lengths to fit any and all types of barns.

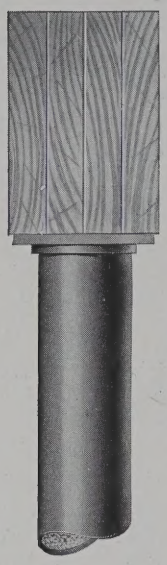
Steel Supporting Posts, Steel Stalls, Steel Stanchions without the use of any wooden parts whatever give you the ideal equipment for perfect sanitation, strength and long life.

Let Us Help You Locate Your Supports

Since the supporting posts carry the roof and haymow loads and at the same time come in and around your stalls and pens, it is very important that they be carefully and properly located. Regardless of whether you intend to put in Louden Steel Columns or not, let us give you a plan showing just exactly how many posts you need, where they should be placed and the proper size of post that should be used to meet your particular requirements best. In this way you can be assured of the posts being placed to the very best advantage for your convenience in handling the stock—that they will carry the load you expect them to carry—that they will be satisfactory in every other way.

Our Barn Experts work out thousands of such plans every year—they will gladly render this service without any cost or obligation whatever. Simply tell us the length and width of barn you have in mind—whether it is to be one story or two stories and the number and kind of stock you intend to house.

Louden Steel Supporting Columns

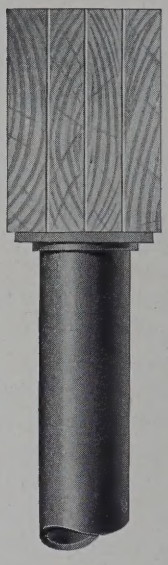


Filled and Unfilled

Louden Supporting Columns are made out of smooth seamless steel tubing with an extra heavy outside wall or shell. They can be furnished either filled with cement or unfilled as desired. Both have great strength but because the filled Columns have the additional weight of the cement filler, the freight charges in shipping them are considerably greater. In view of this we recommend the use of the Unfilled Column. However should you desire the filled posts instead, the most economical way of obtaining them is by getting the regular unfilled tubes and later filling them on the job as the cement work is being put in. Exhorbitant and unnecessary freight expense is thus avoided and your filled Columns will be in every respect as good as if you purchased filled Columns in the first place.

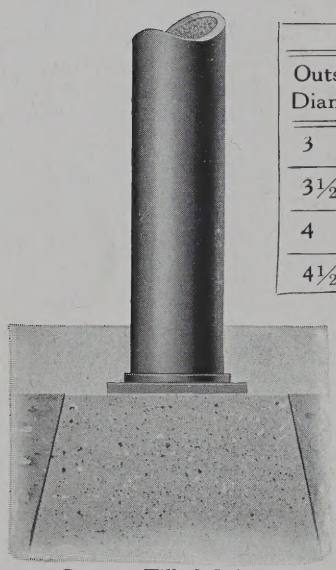
A Metal Cap and Base is furnished as a part of each Louden Column. The top and bottom ends fit snugly within these plates and the Column is thus prevented from working out of position.

All Columns are thoroughly coated with Louden special enamel—a further assurance of long years of wear and extremely attractive appearance.



Capacities of Unfilled Posts

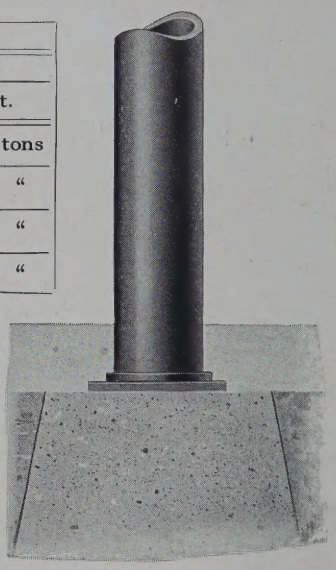
The Number of Tons Each Column Will Carry.					
Outside Diameter	Length of Column				
	6 ft.	7 ft.	7 ft. 6 in.	8 ft.	9 ft.
3 In.	9¼ tons	8½ tons	8 tons	7¾ tons	7⅓ tons
3½ In.	13 "	12¼ "	11¾ "	11⅓ "	10¾ "
4 In.	16 "	15½ "	15 "	14¾ "	14 "
4½ In.	19¾ "	19 "	18½ "	18¼ "	17½ "



Cement Filled Column.

Because it has a thinner outside wall, the capacity of the factory filled Column is slightly less. *In ordering be sure to give outside diameters.*

For the average barn an unfilled Column 4 inches in outside diameter seems, in most instances, the proper size to best meet specific needs. It harmonizes well with the rest of the equipment and has ample capacity to take care of all ordinary requirements. However, the above table gives the range of sizes.

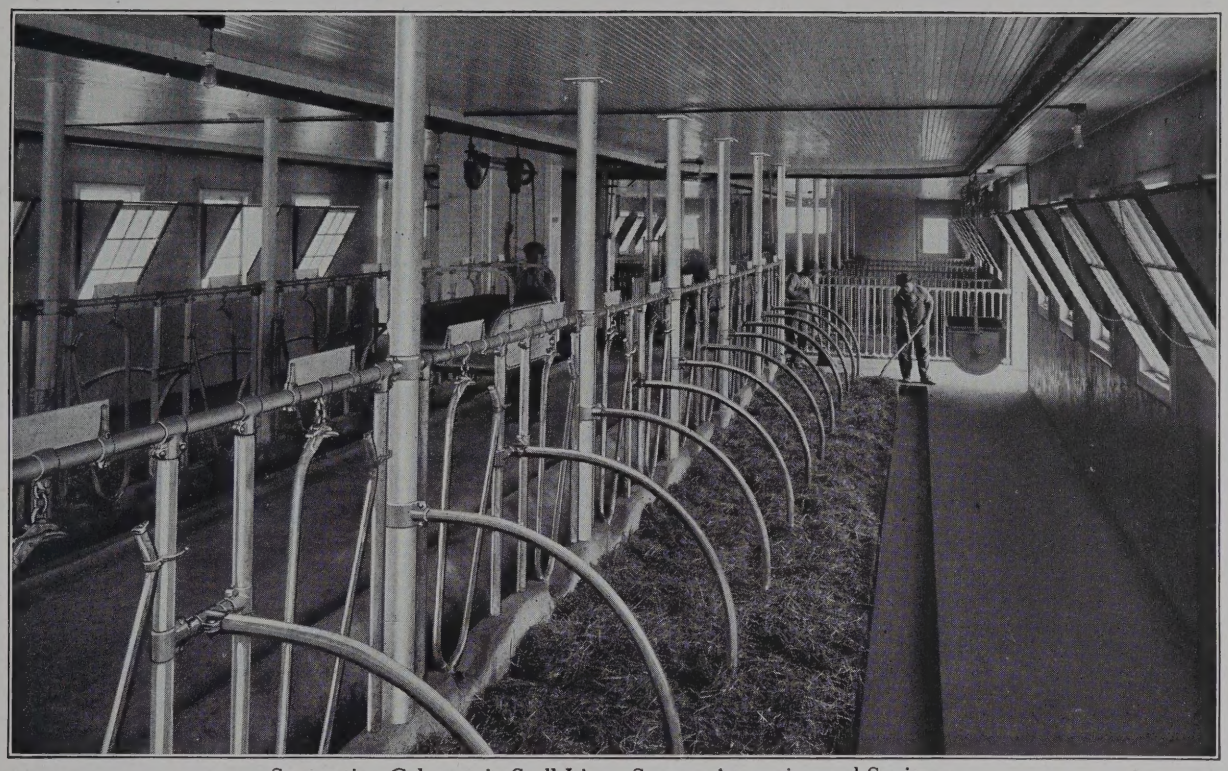


Unfilled Column.

Inside and Outside Diameters of Tubing

There are two kinds of measurements used for tubing—the *inside* diameter, or pipe measurement, and the *outside* diameter (O.D.), or structural measurement. The following table gives the O. D. measurement of the different sizes of pipes from ¾-inch to 6-inch:

¾ inch pipe	1 1/16 inches, O. D.
1 inch pipe	1 5/16 inches, O. D.
1¼ inch pipe	1 5/8 inches, O. D.
1½ inch pipe	1 7/8 inches, O. D.
2 inch pipe	2 3/8 inches, O. D.
2½ inch pipe	2 7/8 inches, O. D.
3 inch pipe	3½ inches, O. D.
3½ inch pipe	4 inches, O. D.
4 inch pipe	4½ inches, O. D.
4½ inch pipe	5 inches, O. D.
5 inch pipe	5 5/8 inches, O. D.
6 inch pipe	6 5/8 inches, O. D.



Supporting Columns in Stall Line—Strong, Attractive and Sanitary.

Placing Supporting Columns in Stall Row

With Louden Stalls the supporting columns may be placed in the manger curb and connected up with the top rail of the stall row or if desired they can be set behind the curb back on the stall floor. This is a matter of preference with the owner as Louden stalls operate perfectly either way.

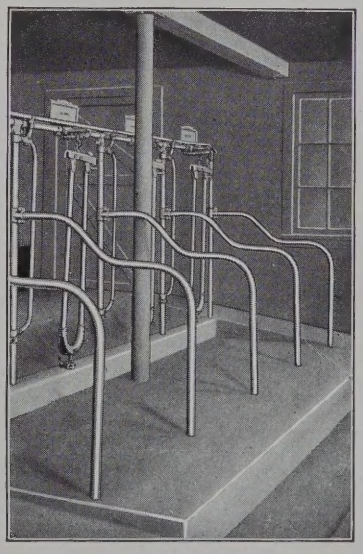
However, due to certain advantages, we cannot refrain from recommending the placing of supporting columns in the manger curb. The top horizontal rail of the row of stalls can then be fastened direct to the columns. And since the columns support the building, they in turn also support the entire stall front.

With such an installation all of the metal work is one solid unit tied to the building supports. It is without a doubt the strongest, most rigid and substantial construction possible to obtain. In addition, the stall fronts, stanchions and supporting columns are all lined up perfectly in one straight row. Hence the general appearance is most attractive.

When supporting columns are set back of the curb on the platform, there is always a little pocket down on the floor between the base of the column and the curb that is exceeding hard and inconvenient to clean out. Like all nooks and corners it fills up quickly. Unless watched, filth will accumulate and the stalls become unsanitary.

Columns placed back out of line, enter the cement floor where there is more or less moisture instead of entering the cement on top of the curb where it is usually dry.

Placing the supporting column back on the platform is the simplest way from an equipment manufacturer's standpoint because the top rail doesn't have to be cut to fit in between the columns nor do large castings for fastening the top rail have to be furnished. Nevertheless our desire always is to see our customers get the best job that it is possible to get and regardless of any slight additional equipment that we might have to furnish, we urge the placing of supporting columns in the curb whenever it is possible to do so. In this way a perfect installation is always assured.



Column Set Behind Stall Row.

Eight Louden Cupolas Efficiently Ventilate this Large Barn Springside Farm, NewHaven, Conn.

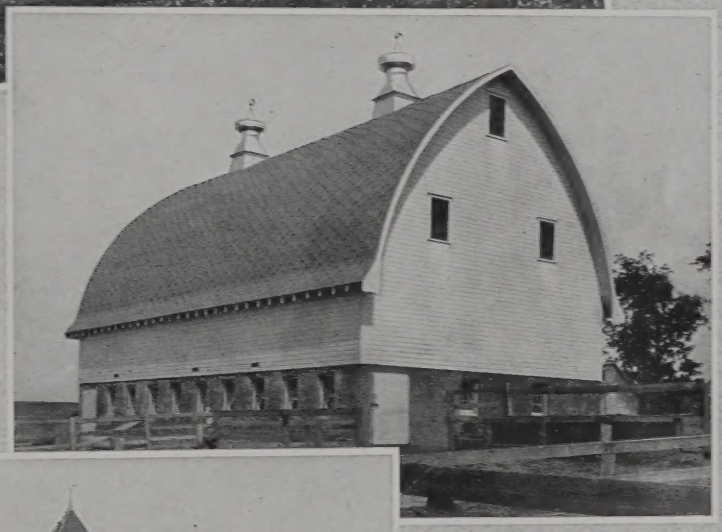
One Louden Cupola is all that is required to properly care for this small barn

Louden Cupolas on One-Story Dairy Barns and on Two-Story Storage Barns
Kilby Farm,
Montgomery, Ala.

Louden Cupolas Provide Fresh air for these fine cattle
John Owens' Barn,
Noblesville, Ind.

Louden Cupolas are strong, durable and easily installed
Carleton College Barn, Northfield, Minn.

Louden Cupolas are properly proportioned for one story barns as well as for two-story barns
Kent School Farm, Kent, Conn.

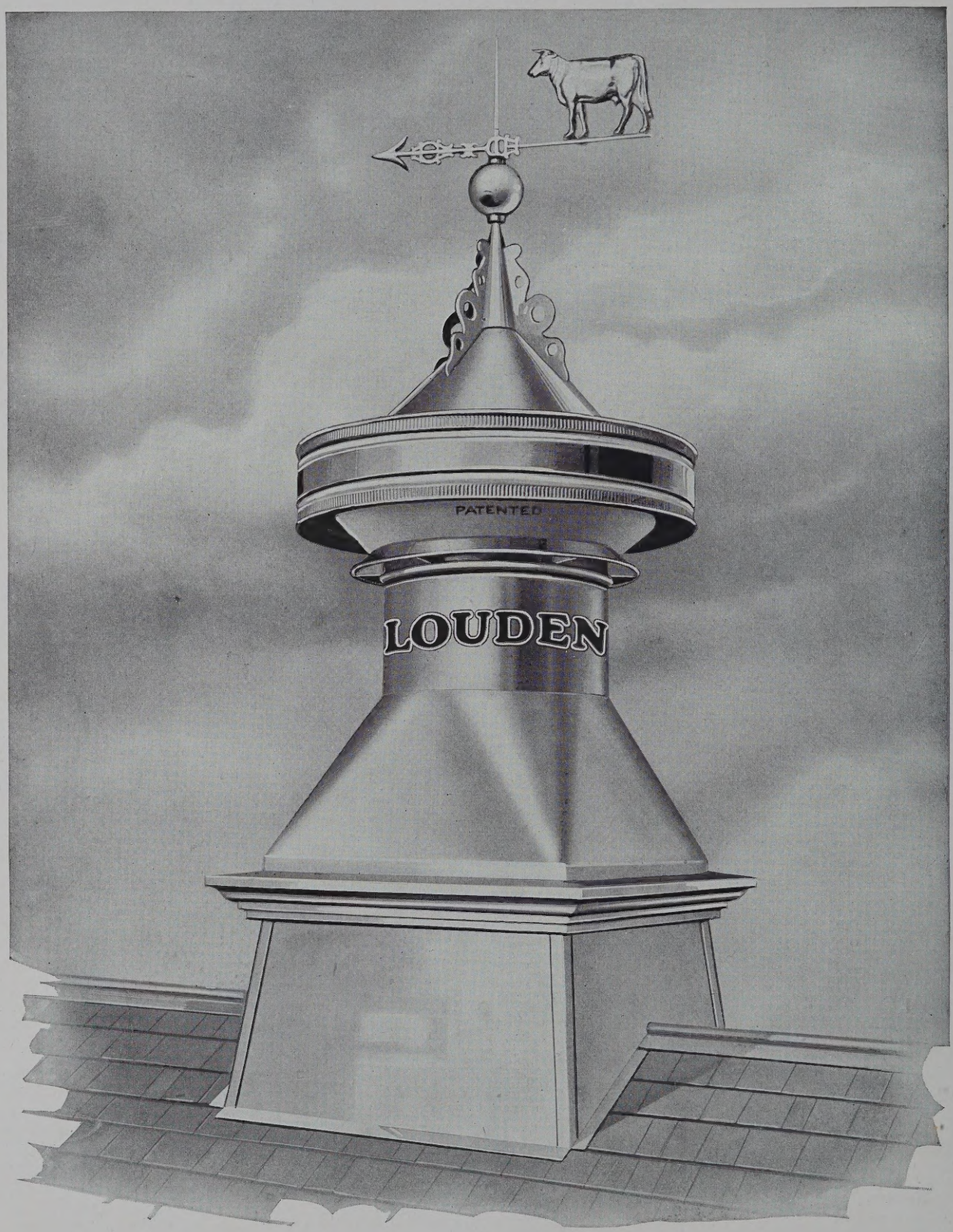


Louden Cupolas add a touch of finish and beauty to any barn they adorn

Louden Cupolas in use in the "Sunny South"
Louisiana State University, Baton Rouge, La.

The Louden Ventilating Cupola—Fig. 1396

Patented November 8, 1921



Remove the Foul Air and Moisture

The air exhaled from a cow contains three times as much moisture as when inhaled. Each cow gives off about a gallon and a quarter of water every 24 hours in her breath. Unless this foul air with its heavy laden moisture is carried out of the barn by means of proper ventilation, it forms an ideal breeding place for disease germs. One of the best preventatives for tuberculosis and other diseases common to live stock, is lots of fresh air and dry, sanitary quarters—made possible by good ventilation.

In the poorly ventilated barn the moisture thrown off by the livestock condenses on the walls and ceilings—rusts the nails and rots out the lumber at a surprisingly rapid rate. If the ceiling is not tight in an unventilated barn the moisture gets up into the hay and rots it. It is not at all uncommon to find barns where the foul air has escaped up into the hay mow between the studding and spoiled a considerable amount of hay clear to the top of the pile. Then from the standpoint of a minimum amount of expense for upkeep and repairs a good ventilation system is all the more important.

The Louden Ventilating Cupola — Fig. 1396

A cupola is almost invariably placed on a barn for two principal reasons—to carry the heat out of the hay loft—ventilate the barn properly and to add a touch of finish to the general appearance of the building. Then the cupola that will meet these requirements to the highest degree of efficiency and is at the same time quality built throughout, is the cupola you will want to investigate. The Louden Cupola Fig. 1396 shown on opposite page does all of this—does it in the very best way—and in addition is sold at a price that is extremely interesting—a price even lower than the cost of an old style wooden cupola.

The ventilating portion of the Louden Cupola is so designed that even when the weak air currents of comparatively calm weather strike it, a strong suction is created in the flue—a suction so strong that the foul air from the interior of the barn is pulled out. And remember, it is the ventilator that ventilates when the atmosphere is comparatively still that is efficient under all conditions, because when the wind blows hard almost any type of ventilator will do its work satisfactorily. The extreme high efficiency of the Louden Cupola is made possible by means of the improved design of the V-shaped ventilating band or air shield and the fact that there is an open space between it and the throat of the cupola—all exclusive Louden patented features of design and construction—features that can be obtained only in the Louden Cupola.

The Louden Cupola Cannot Clog Up

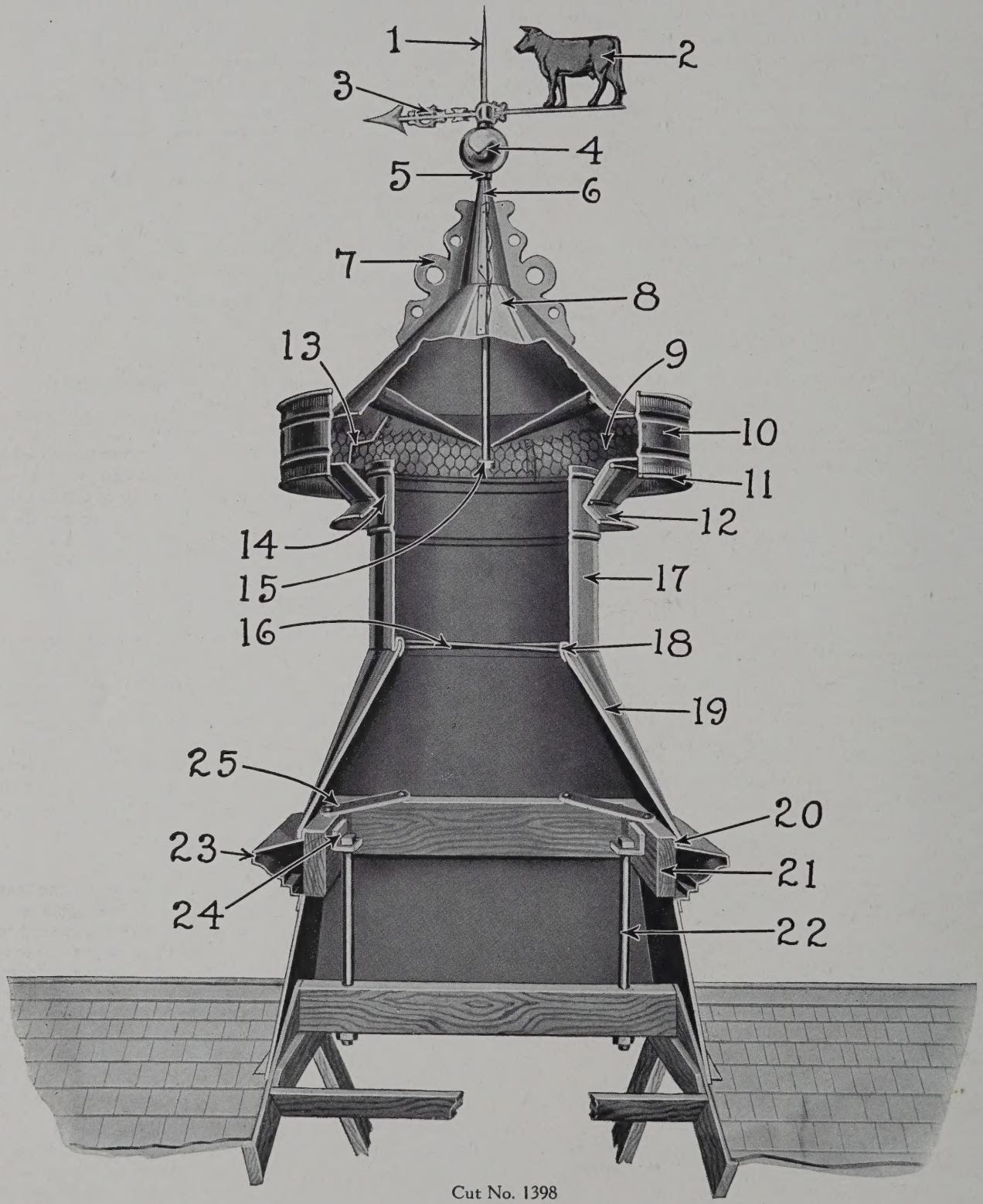
It is only the man who has had experience with the ordinary cupola—the annoyance and danger of having to climb up ever so often and clean the trash out that realizes the importance of this superior construction embodied in the Louden. Look at the detail cut on the following page and you will understand why the Louden cannot clog. The open space between the V-shaped air shield and throat of the cupola does not permit any trash to accumulate. Compare this feature with the ordinary cupola wherein the air shield is fastened right up against the body of the cupola, making a regular pocket for all debris to fall into, collect, and eventually cause the body to rust—you will then be convinced that this is a little hidden part of every cupola on which so much depends when it is away up on top of the barn. After the Louden is put in place you can forget about it—it will work year in and year out the same—always efficiently.

Will Last as Long as the Barn Stands

A cupola is away up high—it is hard to get to—you don't want to have to tinker with it even the least bit—therefore, it is exceedingly important that the cupola you buy be not only efficient in doing its work but that it also be durably constructed—that it be built to withstand the storms and winds that encounter it year after year. Study the mechanical make-up of the Louden Cupola on the following pages. Heavy sheet steel strongly reinforced with steel bars is used throughout. Look at the joints—where the different sections are put together—there are four thicknesses of metal. Notice the cross braces in the middle portion where the throat fastens to the sloping part of the base. Consider that the large circular band at the top is braced with $\frac{3}{16}$″x$\frac{3}{4}$″ galvanized iron—that it has a $\frac{1}{4}$″ rod worked in at the top and bottom edges to make it absolutely rigid. Remember that the Louden Cupola is anchored to the roof to stay—with two heavy $\frac{3}{8}$″ bolts. Compare any or all of these and its many other points with any other cupola made and you cannot help but feel that the Louden is built exceptionally strong, rugged and durable, as much so as the best of material and workmanship can produce.

The cut on opposite page speaks for its attractiveness. The cupola is finely proportioned and well balanced. Painted bright aluminum—fitted with a rich gold leaf weather vane—adorned with a large ruby ball—the Louden Cupola makes a perfect ornament that adds a touch of beauty to any building it is placed on.

Compare the Louden Cupola Point for Point with Any Cupola Made Today



Cut No. 1398

Mechanical Construction of the Louden Cupola

Could a Better Cupola Be Built?

Numbers Refer to Cut-away View No. 1398 on Opposite Page

1. Cupolas are furnished with Copper Nickeled Lightning Rod point, 5/8 inch in diameter, extreme tip being magnetized. Sits in copper lightning rod tube which extends down through the cone. Tubes run up to 46 inches in length, depending on size of cupola.

2. Each Cupola is fitted with a beautiful 30-inch Gold Leaf Weather Vane mounted on a strong, substantial base. Vane can be furnished to represent a horse, cow, sheep, hog or rooster. Vane desired should be mentioned in ordering.

3. Vane revolves on a Brass Bushing and is seated on a brass ring—a guarantee that it will not wear out or become wobbly, also an assurance that it will turn easily with the slightest breeze.

4. A beautiful Ruby Glass Ball—highly colored—clear and bright—adds greatly to appearance of cupola.

5. Aluminum rings both below and above glass ball.

6. Strong metal cone supports vane and glass ball.

7. Four braces for reinforcing cone to roof, making cone very rigid.

8. Roof of cupola—held firmly with 1/4x3/4 inch rust resisting bolts and washers.

9. One inch mesh galvanized metal netting prevents birds from entering barn through cupola—at the same time it insures the passage of air regardless of temperature.

10. Heavy reinforced steel weather band designed especially strong to withstand storms and severe winds.

11. Bottom and top of weather band doubly braced with 1/4 inch galvanized rod worked in at the edges with an additional swage near each rod.

12. V-shaped band that increases velocity of wind because of design—aids ventilation—strongly patented feature of the Louden Cupola. Very substantial—rigidly braced clear around with heavy braces.

13. 3/16x3/4 inch galvanized iron braces rigidly hold large weather band in place. From 6 to 8 used, depending on size of cupola.

14. Opening produces current of air at top of flue, thereby creating a suction that pulls the foul air out of flues. Ventilating engineers agree that if a draft can be created at the top of a cupola it will insure ventilation. This opening at 14 performs this very function. Because of air circulating upward through this opening, frost caused by condensation cannot accumulate and clog up the metal screen, as is commonly the case with the ordinary cupola. This opening also eliminates the possibility of a back draft in the flue. Neither can trash accumulate and cause the metal to rust out or prevent proper ventilation—the Louden ventilates at all times. Compare this feature with any cupola made and you will be convinced it is a superior point.

15. T-Burr cable connection fastened to end of lightning rod tube furnished for convenience in attaching lightning rod system. Note just above this connection the inverted cone under the roof. This is made solid and because of its shape increases the velocity of air that strikes it, thereby giving greater suction power immediately over foul air flue.

16. 3/16 x 3/4 inch iron cross braces where throat fastens to sloping base. Strength where strength is needed. This cupola will defy the strongest wind.

17. Cylinder or throat of cupola.

18. Four thicknesses of metal at interlocking joint where throat fastens to sloping base. A point where strength and durable construction is necessary. Compare this construction with the joints used in ordinary cupolas.

19. Sloping bottom—round where it fastens onto throat—square where it attaches to base.

20. Weather proof joint where lower part of cupola is attached to base frame.

21. 2"x8" wood base frame built into cupola—no carpenter work necessary—it comes to you complete.

22. Cupola is anchored to roof of building by means of heavy 3/8" steel bolts—two furnished. The Louden Cupola is anchored to stay.

23. Galvanized steel base moulding.

24. 3/16x1 1/2 inch angle irons built in cupola, hold heavy 3/8" anchor bolts.

25. Heavy corner braces on the wood frame makes the cupola exceedingly solid.

The Louden base requires no frame on the roof before putting it in place. This saves you the trouble and expense of building a base on the roof. The base is furnished made up complete. The galvanized sheets on the sides of the base can be cut to fit pitch of roof. All corners of base and joints of cupola are water tight. The flaring base not only adds to strength of cupola but makes it more attractive as well.

Sizes of Louden Ventilators

Size		Height	Weight Crated	Width at Bottom
36 in.	With Base	13 ft.	450 lbs.	5 ft.
30 in.	With Base	11 ft. 5 in.	345 lbs.	4 ft. 3 in.
27 in.	With Base	10 ft. 4 in.	315 lbs.	3 ft. 9 in.
24 in.	With Base	9 ft. 3 in.	250 lbs.	3 ft. 6 in.
20 in.	With Base	8 ft. 3 in.	175 lbs.	2 ft. 9 in.
20 in.	Taper Base	6 ft. 5 in.	125 lbs.	2 ft. 4 in.
16 in.	Taper Base	5 ft.	100 lbs.	1 ft. 10 in.
13 in.	Taper Base	4 ft. 7 in.	85 lbs.	1 ft. 6 in.

Estimated Number of Ventilators for Barns

Length of Barn	No.	Size
26 ft.	1	20 in. Ventilator
28 to 34 ft.	1	24 in. Ventilator
36 to 40 ft.	1	27 in. Ventilator
42 to 44 ft.	1	30 in. Ventilator
46 to 62 ft.	2	24 in. Ventilators
64 to 72 ft.	2	27 in. Ventilators
74 to 88 ft.	3	24 in. Ventilators
90 to 94 ft.	3	27 in. Ventilators
96 to 112 ft.	3	27 in. Ventilators
114 to 120 ft.	3	30 in. Ventilators

The Louden Ventilating Cupola is Easy to Put Up

The Louden Cupola comes to you nested solidly in a heavy, substantial crate—it reaches you in the same perfect condition that it leaves the factory in.

For your convenience in putting it on the roof the Louden Cupola is made in three sections—the base, middle portion, and top part. Thus it is a simple job to get the complete cupola up in place. The three sections fasten together with heavy interlocking joints and rust-proof bolts—an exceptionally strong and durable construction—making a cupola that will last as long as the barn stands and one that can be erected without the usual danger and hard work so common with many of the older types.

If you are not sure just what size cupolas are needed, the number required, or the size of ventilating flues to use, drop us a line, and let our barn experts help you solve your ventilating problems. Full and complete information will be sent—no obligation whatever.

Louden Ventilating Cupolas with Taper Base

For Hog Houses, Chicken Houses, Creameries, Etc.

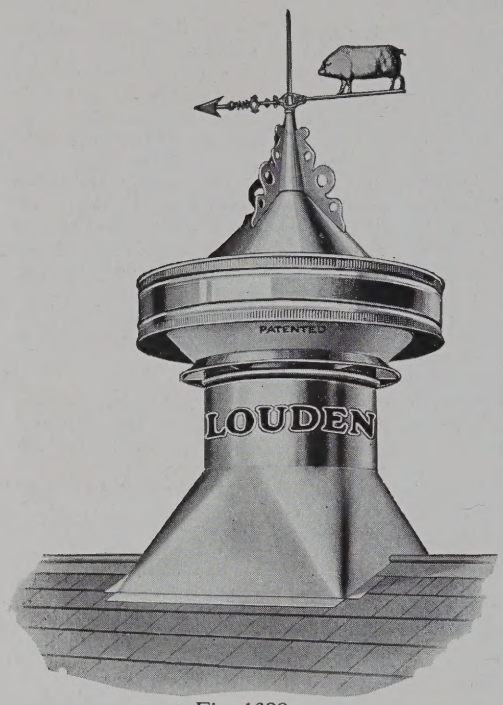


Fig. 1399

Specifications

This Cupola is identical in construction with Louden Ventilating Cupola, Fig. 1396, only that it is built without the regular base at the bottom and the ruby ball at the top. Turn to page 181 for its mechanical construction and the table showing standard sizes in which it is made.

Fresh air and proper ventilation are just as necessary for hogs as for human beings. Hogs require a certain amount of oxygen which can be obtained only in fresh air. When they are outside these needs are taken care of, but when housed in a tight, well-built hog house some means must be supplied for bringing in the fresh air and taking out the used or foul air along with the moisture produced if the house is to be comfortable—the hogs are to be healthy, thrifty and do their best in putting on fat. And this must be accomplished without creating severe drafts or making the house cold, such as might happen were windows and doors used entirely for letting in fresh air.

In view of these outstanding facts a good ventilating system and especially efficient ventilating cupolas are a necessary part of every hog house.

Louden Cupola — Fig. 1399

The Louden Ventilating Cupola, Fig. 1399, for Hog Houses, is more than an ordinary cupola—it is as well a ventilator of the highest efficiency. It carries off the excessive moisture and foul air and at the same time prevents snow and rain from beating into the building. The Louden is so designed and constructed that trash and frost cannot clog up the vent chambers—a feature strongly covered by our patents.

The Louden Fig. 1399 Cupola is made out of heavy galvanized sheet steel with rust-resisting bolts, nuts and washers—a quality construction that insures exceedingly long life. Inside of cupola is braced very rigidly throughout—strongly and durably built in every detail. Easily installed. Painted aluminum—makes an attractive finish—an ornament that adds a touch of beauty to any building it is placed on.

Louden Jewel Cupola — Fig. 1400

The Louden Jewel Cupola is a good, strong, durable cupola that will perform its work well on one story Houses. While it is designed without a weather band such as Fig. 1399 Cupola has and also requires less materials as a whole in its construction, it is nevertheless a very efficient ventilator. For the above reasons it is also sold at a lower price. Painted aluminum, it makes a very attractive appearance when in place.

Number and Size of Cupolas Needed for Hog Houses

Width of House	Length	Cupolas Required
21 to 24 feet	Less than 20 feet	1-13-inch Cupola
21 to 24 feet	20 to 42 feet	2-16-inch Cupolas
21 to 24 feet	43 to 58 feet	2-20-inch Cupolas
21 to 24 feet	59 to 98 feet	3-20-inch Cupolas
21 to 24 feet	99 to 120 feet	4-20-inch Cupolas

Either of the two Louden Cupolas above described are also ideal for Chicken Houses, Garages, Creameries, etc.

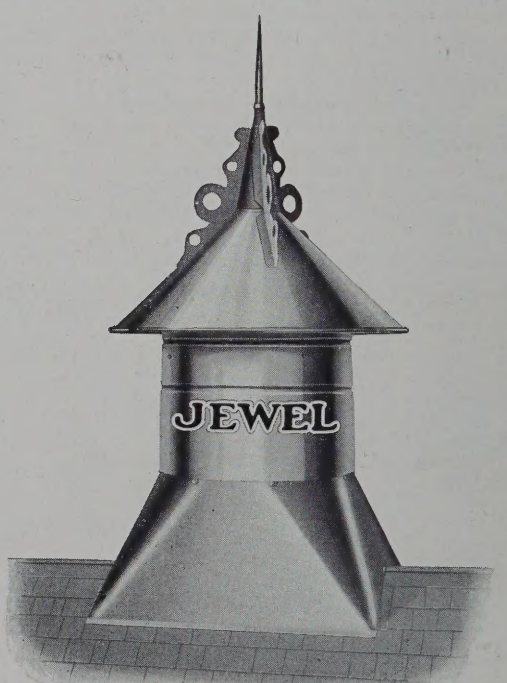


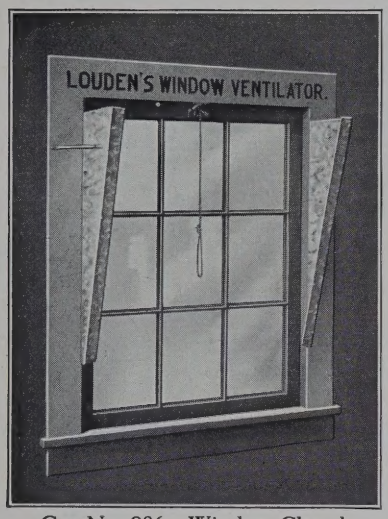
Fig. 1400

Specifications

13-in. size; height, 4 ft. 7 in.; weight, 45 lbs.
16-in. size; height, 5 ft; weight, 65 lbs.
20-in. size; height. 6 ft. 5 in.; weight, 90 lbs.

The Louden Ventilator for Windows

All Views are From Inside of Building



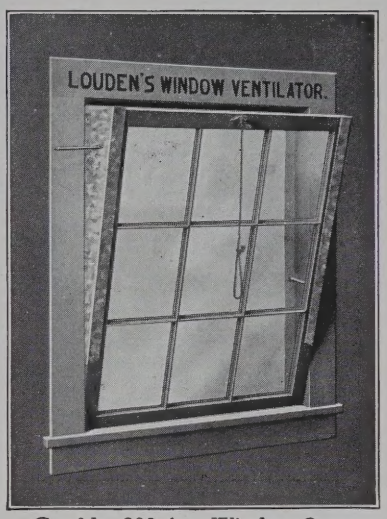
Cut No. 986—Window Closed

Specifications

Size: Fits any window where sash does not exceed 48 inches in height. On order ventilators for higher windows can be furnished, at slight additional cost.

Fixtures Include: 2 shields (one right and one left), two dogs, two braces, 1 catch and 1 keeper, 22 screws and 2 rivets. Approximate weight of average size 10 lbs. Ventilators are easily installed. We do not sell the sash.

Finish: Galvanized. Be sure to give height of sash when ordering. This is the only measurement we need.



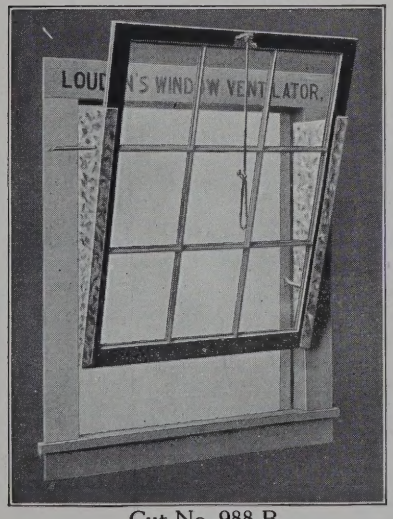
Cut No. 988-A. Window Open

Sunlight and fresh air are the great natural enemies of disease. The barn should have plenty of windows to keep it light, sanitary and cheerful and to furnish summer ventilation.

The Louden Window Ventilator makes possible an abundance of fresh air without injurious draughts. Instead of opening like an ordinary window the sash tilts inward from the top and rests against metal shields, as shown in Cut No. 988-A. The cold air, instead of striking the stock directly, is thrown upward, and mingles with the warm air, near the ceiling before it comes in contact with the animals. The metal shields also prevent rain and snow from beating in. When it is necessary to keep stock in the barn during warm weather the window may be opened and raised, as in Cut No. 988-B, to give a direct and cooling circulation of air throughout the barn. This feature is a decided improvement over the hinged type of window, which cannot be raised. With the Louden Window Ventilator the sash may easily be removed from the window if desired.

Cut No. 989 is a cross section of a window fitted with a Louden Window Ventilator. It shows the window open and slightly raised. The sash is automatically held raised at any desired height by two strong locking dogs, one on each side of the window.

The shields are made of stiff galvanized sheet steel. They are secured to the casing by screws along the inner edges. Flanges along the back edges, turned in, support the sash when open. The shields are stiffened by brace rods, riveted on.



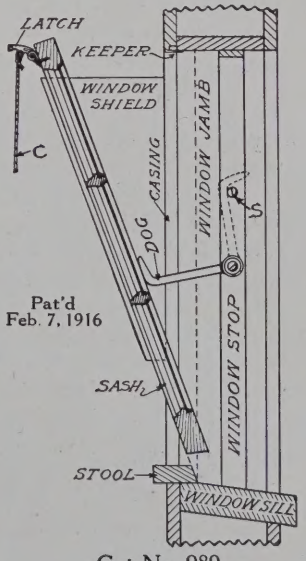
Cut No. 988-B
Window Open and Slightly Raised

Made to Fit Any Window

The Louden Window Ventilator is made in different sizes to fit any window. To get the proper size to fit your particular requirements, give height of sash. This measurement is absolutely necessary before we can make up shields that will accurately fit your needs. No other information is required.

The Louden Window Ventilator is the most perfect and most efficient window ventilator made. The metal fixtures are strong and durable, yet inexpensive and extremely simple to install. Specify it when you build or remodel.

Wherever live stock of any kind is housed, Louden Ventilators should be used. The slight original cost will be more than made up by the first year in the way your barn is kept fresh and evenly regulated—in the better health of the animals housed.



Cut No. 989
Cross Section

Louden Roof Windows Give Your Hogs Sunshine

Every Sunlit Hour of the Day

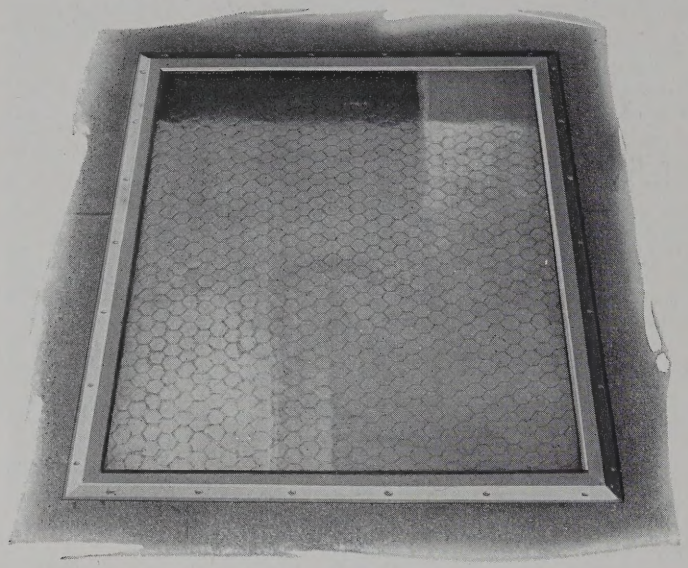


Fig. 1401—Louden Roof Window.

Specifications

Galvanized steel frames completely made up ready to drop in place in the following sizes:
Size No. 1. 22½ inches wide x 28½ inches long.
Size No. 2. 22½ inches wide x 36½ inches long.
Size No. 3. 22½ inches wide x 45½ inches long.

The glass used in all Louden Windows is heavy, "Solite" ¼ inch thick reinforced with wire. One of the best pieces of glass obtainable to withstand storms, hail, etc. The sizes of glass furnished to fit above frames are as follows:
Size No. 1. 22 inches wide x 28 inches long.
Size No. 2. 22 inches wide x 36 inches long.
Size No. 3. 22 inches wide x 45 inches long.

In addition enough asphaltic cement is furnished to seal each window—water, wind and snow proof.

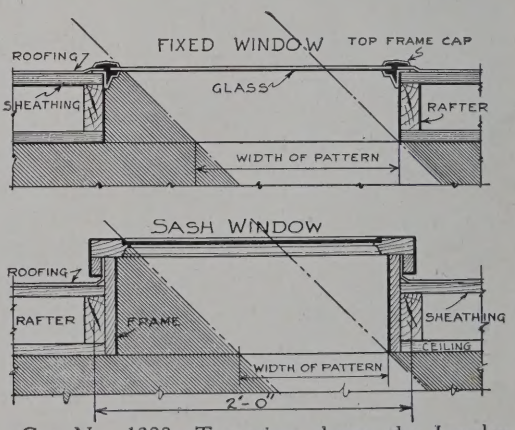
Window is flush with roof—admits more sunshine per square foot of glass than any other type of roof window made. It is exceedingly strong and durable—built throughout of heavy materials. Fits in between regular rafter spacing. Is easily installed and extremely neat.

One of the most essential and important features of the successful hog house is the amount of sunshine—good, wholesome sunshine it will let in during the late winter and early spring farrowing periods. Sunshine promotes sanitation, warmth and dryness—three main requirements for the quick growth and healthy condition of the herd. Sunshine is especially stimulating and invigorating on small pigs—they thrive on it—plenty of it means fewer losses right after farrowing.

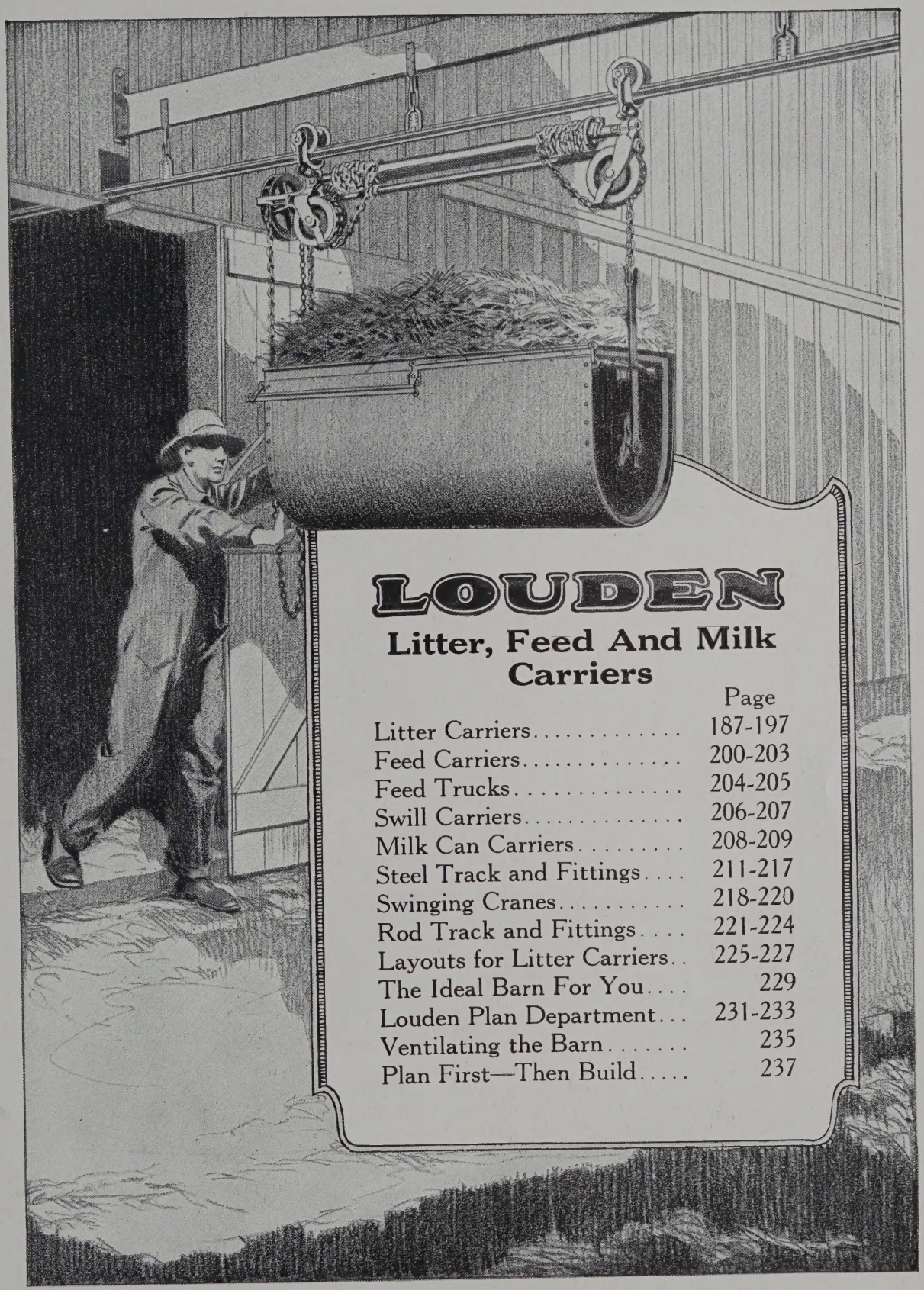
Sunshine is a great disinfectant. It is one of the best insurances against cholera because it keeps this dreaded disease from getting in. The bright rays of sunshine pouring in through the roof windows transforms the dark, damp, dingy, unsanitary, filthy quarters into a bright, clean, warm livable place that means more profit per hog and more pigs saved.

Louden Roof Windows, Fig. 1401, flood the interior and floors of your hog house with sunshine. They direct the sun's rays into every nook and corner of each pen—during the sunny days of January, February and March when your hogs need sunshine most. And what's more they admit more sunshine per square foot of opening than any other roof window made. Cut No. 1380 explains why this is true. In the first place the common roof window is a built up sash window affair—the glass is several inches above the roof level. Aside from being tedious to install it does not have the sunshine efficiency when compared to the window level with the roof line. When the sun's rays strike it on a slant, as they do in January, February and March, the high built up frame shuts off much of the light, and the sunshine that actually gets through is considerably less than it should be. The bottom view in cut No. 1380 shows a cross section of this style of window and the width of the pattern it admits.

The Louden Window is designed to overcome this objectionable feature—it is made to trap every ray of sunshine possible. The glass is flush—on a level with the roof. There is no frame to shut off part of the sunshine—it is built to give you the greatest sunshine efficiency possible to obtain in a roof window. The top cut in No. 1380 shows a cross section of the Louden. Note the width of the sun pattern that goes through the glass. Now compare this feature with that of the high built up sash window just below it. One seventh more sunshine enters the house through the Louden window than through the sash window, and since you are buying a roof window for sunshine—this is a valuable feature—it's just one of the many things that has made the Louden so popular among hog men all over the country.



Cut No. 1380—Top view shows the Louden Window flush with roof. Ordinary High built up roof window is shown below. Notice the wider sun pattern that the Louden window lets through.



LOUDEN

Litter, Feed And Milk Carriers

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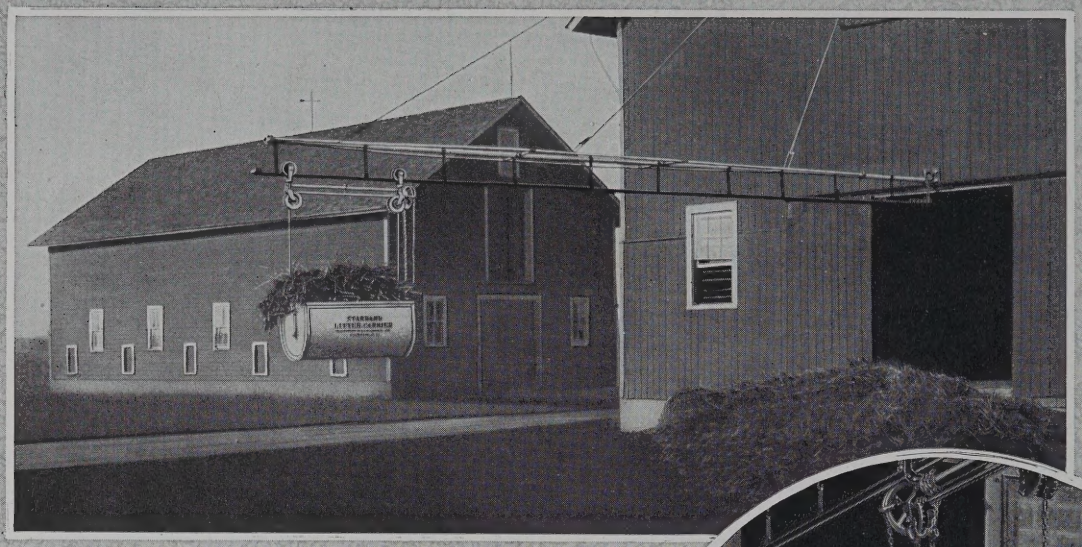
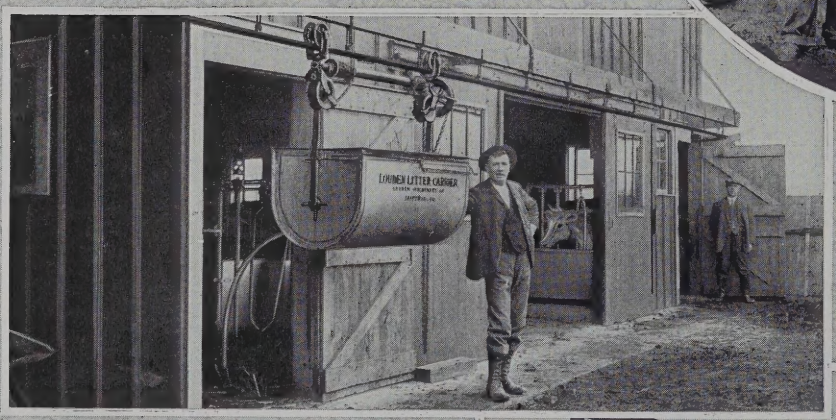


The Louden Carrier and Swinging Boom gives a big dumping radius.

C. M. Hammond,
West Chicago, Ill.

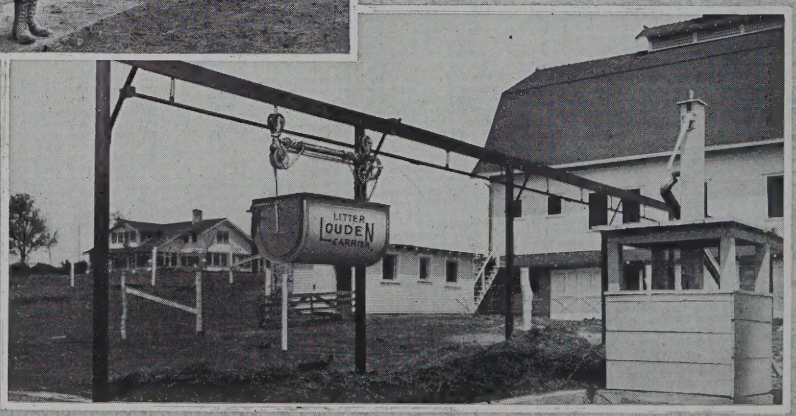
A cleaner barn with less help, in less time and without drudgery.

Briarcomb Farm,
Winona, Minn.



One man with the Louden Carrier does the work of three men in cleaning the barn.

E. F. Michael,
La Porte, Ind.



Taking the manure away from the entrance and dumping it.

F. J. Bannister,
Kansas City, Mo.

Louden Carriers Will Do Your Barn Work

Better, Quicker and Easier

The Back Breaking Wheelbarrow Way

Not one of the thousands of practical farmers and dairymen who are daily experiencing the satisfaction and economy of the Louden Manure Carrier would go back to the wheelbarrow—the old dirty, sloppy, drudgery method of handling manure.

With the Louden Carrier, quickly and easily you shovel the manure into the big roomy tub—there is no need of building the load as is often the case with the wheelbarrow. A touch moves the carrier along with you as you clean up the gutter and the tub always stands down close in the handiest, most convenient position for loading. Regardless of how big the load may be, the roller bearing wheels glide along the track out into the yard—the job is more like a boy's play than a man's work. The result is that even in a moderate sized barn the Louden Manure Carrier will easily save from twenty minutes to an hour a day and the saving goes on day after day—year after year.

Thus if the time saved were its only advantage the Louden Carrier would pay for itself repeatedly—but it does more than save time. It saves the liquid manure—makes it possible to return to the soil without waste, the fertilizing elements taken from it by crops. It affords greater cleanliness around the barn and barnyard, all of which results in the better health and greater comfort of the stock. It makes the barn work more agreeable to yourself, your boys and hired men. These factors combine to make the Louden Manure Carrier even more important than the manure spreader itself.

Do Away with Wheelbarrow Drudgery

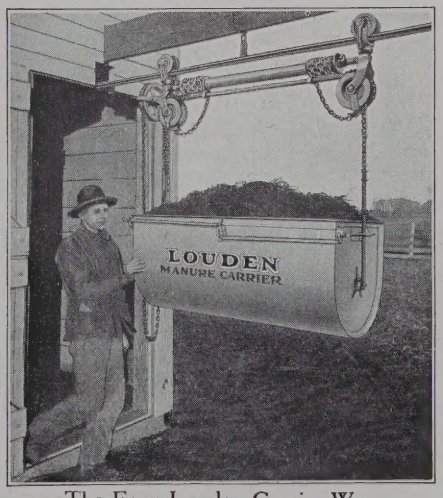
With the wheelbarrow you either have to carry the manure a few steps or put your fork or shovel aside while you use both hands to lift it up and push it forward. And when the wheelbarrow is loaded the hardest part of the job is still before you. You make it as far as the door without much trouble and then the real drudgery begins—with the liquid manure dripping and the solid manure sliding off with each step—you push and tug out across the barnyard through ankle deep mud—you make a run up a slippery, treacherous plank onto the pile. Both your patience and strength are about exhausted. There is almost as much manure scattered along the route as reaches the pile. And time after time you have to repeat this performance.

On the other hand the Louden Carrier takes as much at a single trip as you can take in five wheelbarrow trips. Because of its water-tight tub it takes the manure clean, liquid and solid alike, without scattering or dripping, takes it away from the doors and walls—a pull on the trip and the equal of five wheelbarrow loads goes into the pit, spreader or onto the pile, as you desire. Thus the drudgery and the downright hard work the Louden Manure Carrier does away with is equally as important as the time it saves.

Feed 25 Cows at a Single Trip

With a feed basket you carry enough silage at each trip for a cow or two. Time after time—at each feeding you have to walk back and forth between the silo or feed room and the mangers. The Louden Feed Carrier saves many, many miles each year of this extra walking back and forth, for it takes enough silage or grain rations at a single trip to feed 25 cows. And the work is easier because it, instead of you, carries all the weight of the load. The Louden Carrier saves many a pound of valuable feed and it keeps the stock from unnecessary fretting at feeding time. Once you use the Louden Feed Carrier you will wonder why you did not get it sooner.

Should there be any doubt in your mind about the best arrangement of tracks, switches, etc., to fit your particular needs—drop us a line giving us a rough floor plan of your barn showing the location of the stalls. We will then submit a plan, outlining the ideal system for your requirements and give you the estimated cost of same. You will be under no obligation whatever—this is simply a part of the service we have been rendering farmers for years.



The Easy Louden Carrier Way

The Louden Litter Carrier
Fig. 828

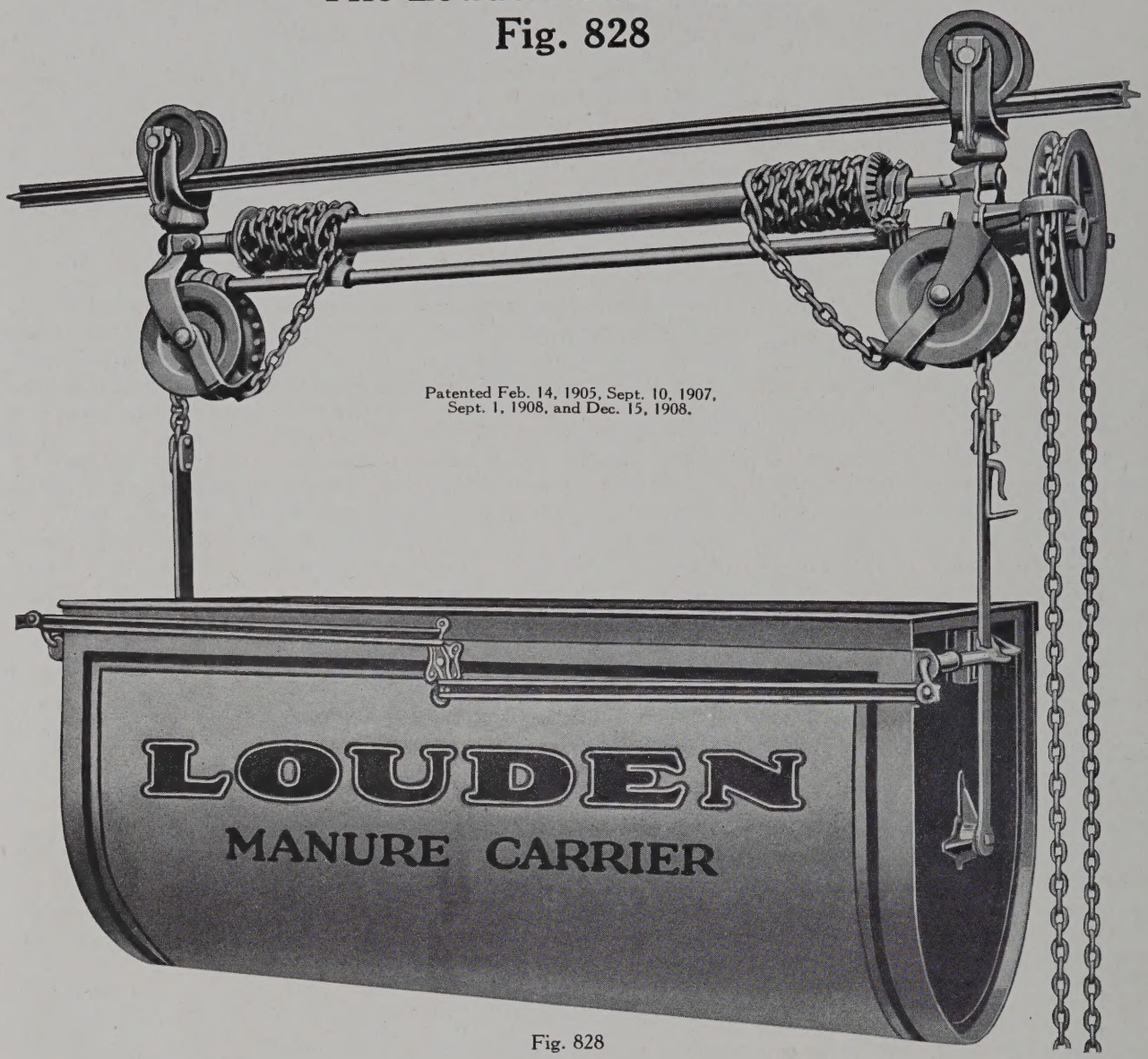


Fig. 828

Specifications

Tub: Ends are built out of 16 gauge galvanized steel; sides 20 gauge galvanized steel. Entire framework is heavy angle iron and all corners are further reinforced with certified malleable iron plates. Tub is welded to frame and not riveted—thus assuring great strength and long life. Tub automatically dumps easily, without binding, either under heavy load or empty—when completely raised or lowered.

Water Tight: Each inside corner of tub is *soldered* water tight. The only water tight tub made. This is important as it saves the liquid manure and keeps the outside of the tub from getting filthy and wet in handling.

Hoist: Worm Gear—one pound pull on hand chain raises 40 pounds in tub. Hence a boy can easily operate it. No chain sprockets or clutches to get out of order, constantly cause trouble or accidents. Gear made of Certified Malleable Iron and Steel—strong, tough and durable.

Trip: Latches both ends of tub and trips from either end.

Lifting Chains: Electric Weld one piece links made out of steel rod $\frac{9}{32}$″ in diameter—Heavy, smooth, exceptionally strong. Distance from top of track wheels to bottom of tub when raised 4 ft. 2 in.; when lowered 10 ft. 9 in. Tub made to raise and lower as much as 20 ft. on special order.

Track Wheels: 5 inches in diameter and are *Roller Bearing.* A quality construction that assures extreme ease of operation. Wheel clearance necessary 5 inches. Weight of load is carried directly under center of track and wheels.

Capacity: Tub is 48 in. long, 22 in. deep and 27⅛ in. wide. Capacity 12 bushels. Compare the size with that of any other tub made and you'll be convinced it has the largest capacity of any carrier on the market today.

Track: Weighs 2 pounds per ft. Much heavier than ordinary strap iron track. Carrier cannot jump track. Track Hangers are adjustable insuring ease of accurate erection.

Weight: *208 pounds.*

The Louden Litter Carrier — Fig. 828

Easily Operated — Strong — Quality Built

In considering a litter carrier bear in mind that it is not for a day, a week or a month, but for years that you want this carrier to work perfectly—to give you A No. 1 service. That once you have discarded the wheelbarrow you do not want to be compelled to go back to it—even for a single day—while making repairs on a system that was built too cheaply or that was not designed correctly to stand up under the hard daily work that a litter carrier has to perform.

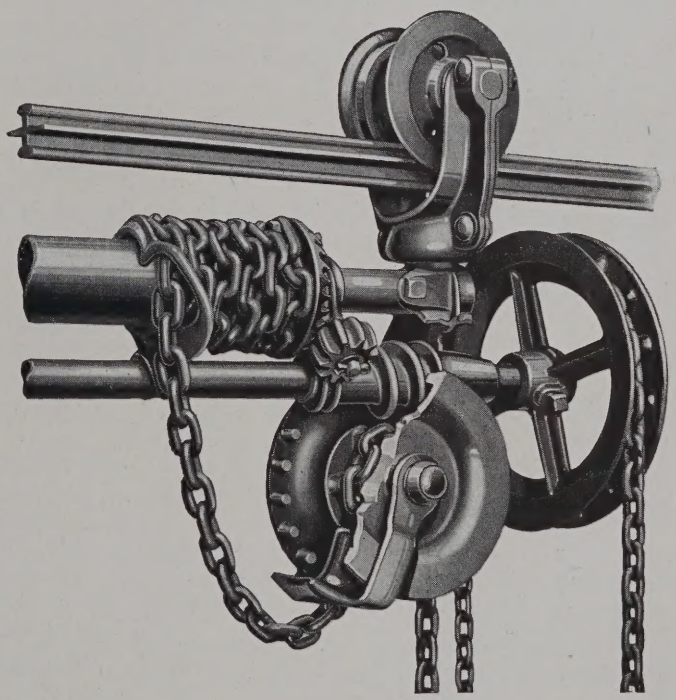
We are the pioneers in the litter carrier field. We hold the first patents ever issued by the United States Government on such a device. For years we have studied every requirement necessary—have experimented constantly—have made improvement after improvement. Thus when we say that the Louden Litter Carrier, Fig. 828 is the most perfect litter carrier ever built it is not merely idle talk based on a manufacturer's fancy, it is instead an actual fact based on exclusive patented features. Throughout the years we have discarded a majority of the devices now commonly used because they did not measure up to this Louden standard of perfection.

The Louden Carrier is strongly built in every single detail in order that it may give years of hard rugged service. As evidence of this construction we call your attention to its weight—the weight of the track and track hangers—the large size of the tub—the distance it may be lowered—the size of the lifting chains, etc. Great strength is placed where great strength is needed. And yet while it is built larger and heavier than the ordinary carrier it lifts the biggest load easier because of the worm gear hoist—it glides along the track easily because of the roller bearing track wheels.

The Load Hoisting Gear

One of the many outstanding superior features of the Louden carrier is the Load Hoisting mechanism. And the hoist is the one part of any carrier that gets constant usage, hence it is exceptionally important.

On the first Louden Carrier built, around 25 years ago, we worked out a chain sprocket with a clutch control and brake as a means for hoisting the load. However as time went on we found that such a hoist had many objectionable features. In the first place it required too much power to lift heavy loads. There was too much chance for the clutch to slip or the brake to become accidentally released. Due to the great speed with which the empty tub could be lowered to the floor, it was constantly getting jammed and battered up. And in many cases when an attempt was made to stop the tub instantly a few inches above the floor the sudden catch would throw so much strain on the hoist that something would snap. We soon found that such a hoist could never meet the Louden standard for quality goods and accordingly discarded it.

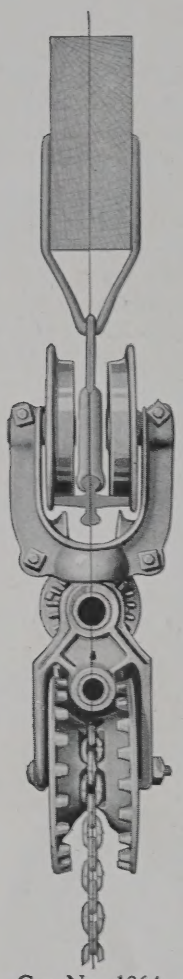


Cut-away view of powerful Worm Hoisting Gear. Gear Wheels lift entire load—slack chain is neatly stored on drum above. Drum lifts none of the weight whatever.

From our experience and first hand knowledge of what was needed in order to give thorough satisfaction we worked out the worm gear hoist—a hoist that overcomes every single objection of the brake and clutch type. A hoist that embodies the same principles used in industrial hoists where ease of operation, safety and positive action must be assured. Over ten years of hard usage the world over has proved that it is the best hoist ever produced for litter carrier work—that it works perfectly.

The worm gear hoist embodies the most powerful lifting principle known to science. It makes raising the tub so easy that with the same effort practically double as much can be raised as with any other hoisting device. With it a boy can raise as big a load as can a man with the ordinary litter carrier—for a one pound pull on the hand chain lifts 40 pounds in the tub.

The Load is Lifted from Each End



Cut No. 1364. End view. Load is hoisted directly below center of gear, track, hangers and overhead supports.

The load lifting chains at each end of the carrier are suspended from the worm gears located directly under the carrier trucks. These chains fit into pockets in the gear and the idle chain is snugly taken up on the large drum above. Thus the entire weight is lifted from *directly* under the track wheels at each end—not an ounce is placed on the chain drum. This is a distinct advantage for where the hoisting chains fasten onto the middle portion of a long shaft a half of the load is placed on the weakest part of the carrier—there is a tendency to spring the shaft. And as the load is raised these chains winding toward the middle of the shaft, constantly pull the end bails in until they bind on the tub ends causing difficulty in dumping the tub.

Cut 1364 is an End view of the Louden carrier showing how the lifting chain fits into the gear and how the track wheels just above it distribute the load evenly on the track. Thus the straight line of draft is from ceiling beam down through the track and carrier to the center of the lifting chains. This is a feature of great strength impossible to obtain were the wheels in tandem or the track hung from the side instead of the center.

Note that the trucks of the Louden Carrier are connected to the carrier frame by a heavy swivel knee joint, the bearing surface of which is 2⅛ inches. The entire weight of the load comes on these connections hence we would never trust fastening the truck and frame together with an ordinary bolt that is liable to bend and get out of shape. We would take no chance on such a construction standing up under the hard usage that we expect the Louden carrier to meet.

And the Louden swivel knee connection is accurately fitted so that the carrier frame and trucks move in unison without jerkiness when the carrier is pushed along the track.

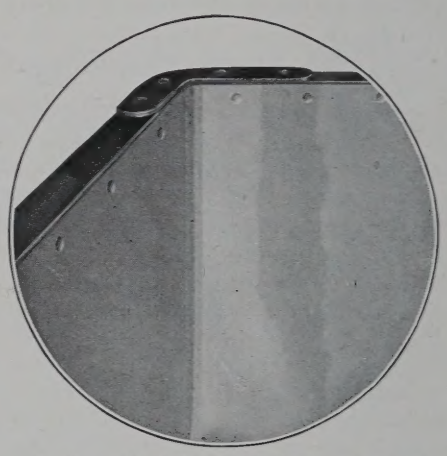
Heavy Water Tight Tub

The tub of the Louden Carrier is built out of heavy galvanized steel with a framework of angle iron. The sheet steel is welded to the steel framework—not riveted. Manure rusts rivets quickly—the heads pull through and repairs are needed. Welding fuses the two pieces of material together as though it were one piece.

Each inside corner of the Louden tub is soldered water tight. No slopping—no dripping all over the operator as he pushes the carrier along. The liquid; the richest and most valuable part of the manure, is saved. We use solder, not putty, in order that your carrier may still be water tight—liquid manure tight—10 years from now. It's the only soldered manure carrier made—it's another mark of Louden quality.

The tub is 48 inches long, 27⅛ inches wide and 22 deep—a big, substantial, roomy tub that has a true 12-bushel capacity.

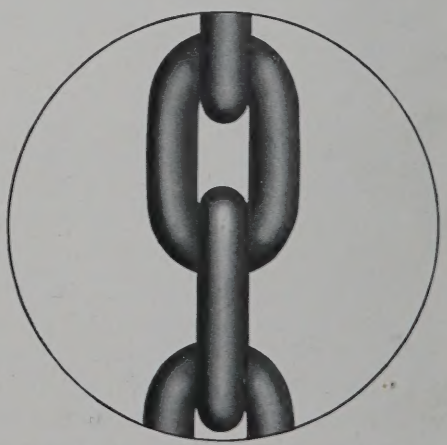
The tub is hung to the exact fraction of an inch to make the balance most perfect. Trips easily from either end and can be righted again with little or no effort. It is very convenient.



Ends and sides welded to steel tub frame. All corners soldered water tight. The one truly liquid-tight tub made.

Heavy Load Lifting Chains

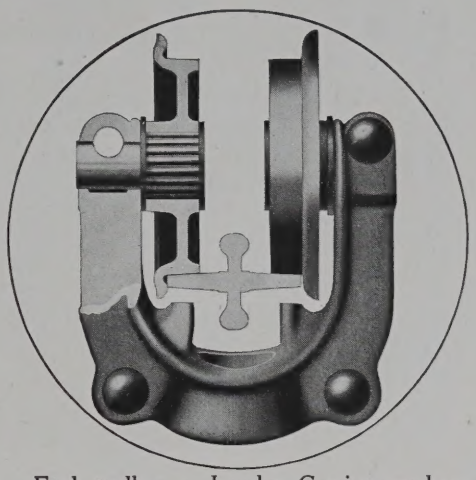
Each link in the Louden lifting chains is made of round steel 9/32 inch in diameter with ends electrically welded together into one smooth solid link. Will not pull apart under heavy strain and always assures raising the load and lowering the tub in the easiest manner. Compare this with the link on ordinary lifting chains—the Louden is heavier—stronger—costs more, but its just another evidence of quality you get in every single detail of the Louden Carrier.



Load lifting chains are heavier. Links are electric weld one piece—smooth—solid—easy to operate—exceptionally strong.

Roller Bearing Track Wheels

There's a reason why the Louden carrier glides along the track so easily under heavy loads. Each wheel turns on 17 tempered steel roller bearings instead of revolving only on a plain iron axle. Not only do the bearings assure easy propellment but they also keep the axle from cutting out after a year or so of work. True, it is not a common construction to use bearings in the track wheel of a litter carrier, but why not? A litter carrier travels many miles each year and it ought to run easily—the wheels ought to last as long as any other part of the carrier. Bearings in the wheels is another mark of Louden quality.



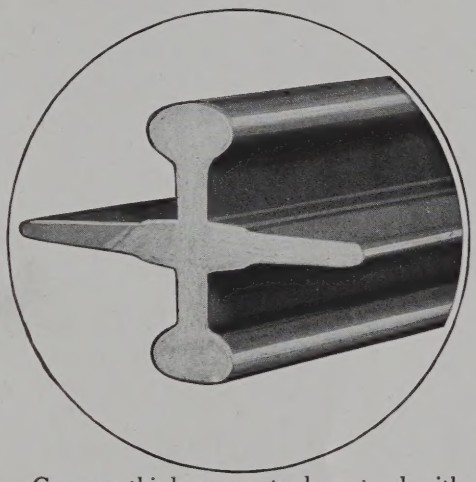
Each trolley on Louden Carrier revolves on roller bearings instead of turning only on a plain iron axle. Runs easy under heavy loads.

The Track Will Carry Two Tons

The Louden Double Beaded Steel Track weighs two pounds per foot. It will carry five times the load you will ever want to handle. It is hung from the *center* directly under the *center* of the support above. The carrier wheels run on each side, hence the weight of the load is equally distributed—it cannot buckle sidewise. Wheels cannot possibly jump off. In good weather—in bad weather, wheels always glide over it easily. It is the heaviest, strongest and best litter carrier track ever made. It's an important feature in your carrier system.

Louden Track Easily Installed

And the Louden track is easily and quickly erected because the link in each track hanger has three distinct adjustments up or down of ½ inch each, making a total adjustment of 1½ inches. Even though the joists may be uneven or irregular this handy adjustment makes it possible to place the track level without the usual trouble of having to block the hangers down or up. This is only one of the many exclusive features of the Louden system that makes for quality, lowest cost of erection and long years of A No. 1 service—features that make the Louden carrier system stand head and shoulders above any litter carrier system ever made. The Louden is decidedly in a class by itself.



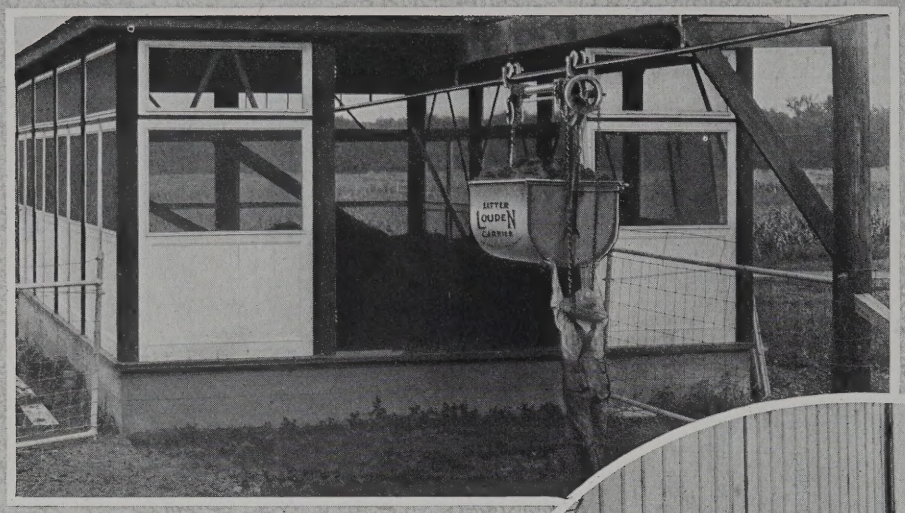
Compare this heavy center hung track with the ordinary side hung litter carrier track. It's heavier—cannot buckle sidewise—durable.

A Superior Carrier At An Economical Price

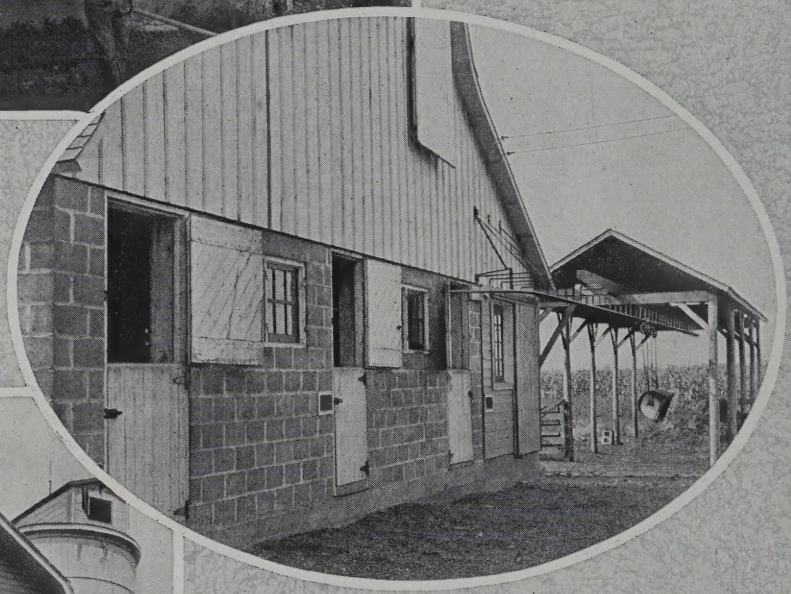
And yet with all the outstanding superior and exclusive features of the Louden Litter Carrier system—with all the quality materials that go into it—it costs no more than the average carrier on the market today. Thus even from the standpoint of first cost alone, there is no reason why you should not have the many advantages that the Louden system offers—advantages that you can get in no other system made.

Ask any man of the thousands and thousands of users, what he thinks of the Louden carrier. Compare it point for point with any carrier made—look at the materials used—the high class workmanship embodied—the great strength of the design—the water tight tub—the heavy durable track—see a ten-year-old boy lift the heaviest load—make any other comparison or tests you desire. The Louden carrier speaks for itself—and after such a comparison we feel confident that you will say as many another man has said, that for a permanent piece of equipment and one that is used 365 days in the year, you cannot afford to have anything but the best—the Louden System.

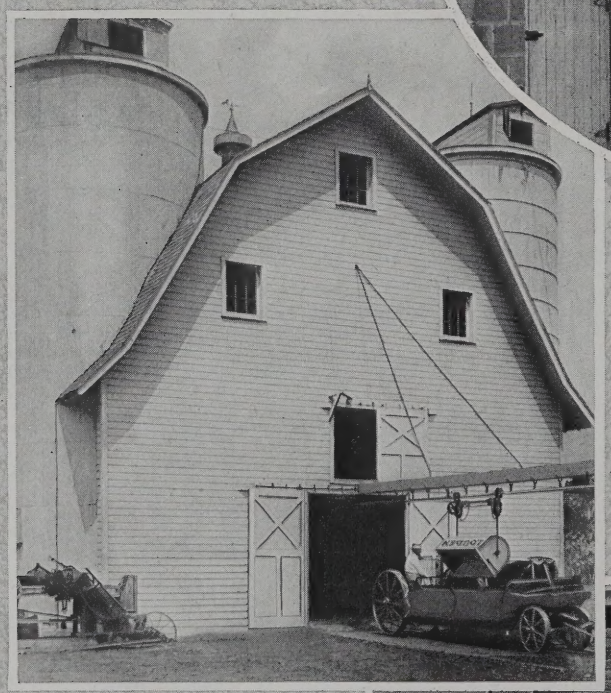
Each Louden Track Hanger has three adjustments up or down. Track easily erected even though overhead supports are uneven.



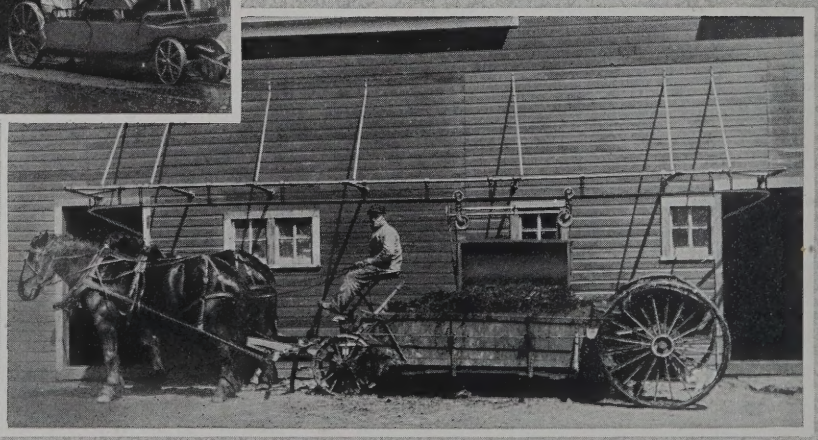
A boy can clean the barn with the easy running, easy operating Louden Carrier.
Morse Farm,
Libertyville, Ill.



Dumping the manure at one side. No obstruction for taking up hay at end of barn.
E. T. Winship,
Owatonna, Minn.



From barn to field without a single rehandling necessary.
Henry Wallace's Farm
Des Moines, Iowa



A handy and practical way to hang the track from the side of the barn.
John Beechner,
Elkton, S. D.

Louden Quick-Out Wire Track Litter Carrier
Fig. 882

Pat'd May 9, 1911

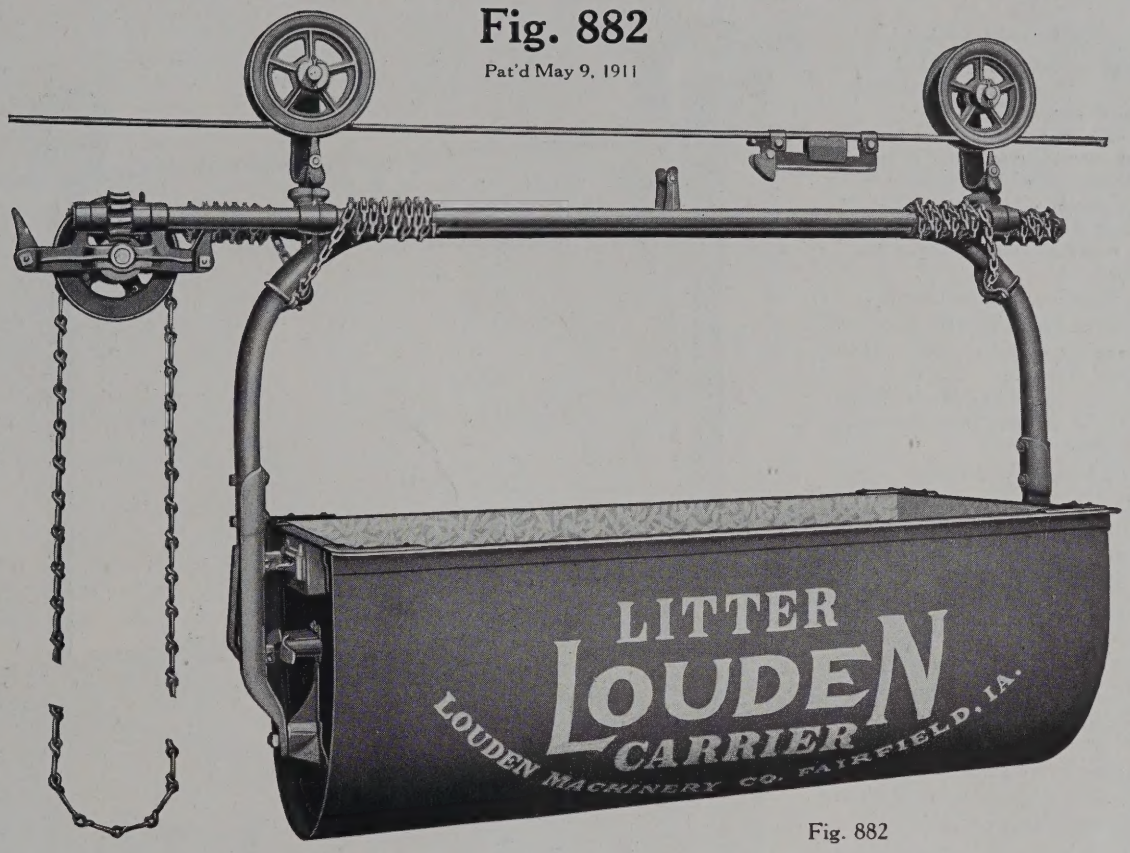


Fig. 882

Specifications

Operates on 0000 Basic Steel Wire Track. (See pages 221-224 for track fittings.) Body of tub is made of heavy 20-gauge galvanized sheet steel; ends of tub are heavy 16-gauge sheet steel strongly reinforced.
Length of tub, 42 inches; width, 24 inches; depth, 15½ inches; capacity, 7 bushels.
Tub is fitted to raise and lower as much as 3½ feet.
Track Wheels are roller bearing.
Diameter of Track Wheels, 6 inches.
Clearance necessary for Track Wheels, 6 inches.
Total clearance necessary, tub upright, 42 inches; tub dumped, 47 inches.
Length of hand chain 8½ feet, ends joined together. Where ceilings are high, longer hand chains can be furnished at slight additional cost.
Shipping weight, approximately 125 pounds.

In some instances where only a simple installation is required a carrier that operates on a wire track is sometimes desired. Wire track carriers have a smaller capacity than steel track carriers. The wire track on which they operate is much lighter than the solid steel track. Thus wire track carriers can be sold at a lower price. And for the lighter work they are built to handle they are very practical.

The Louden Quick-Out Wire Track Carrier shown above carries its load out to the spreader or pile—dumps it and automatically returns to the barn. It is an exceptional wire track carrier in that it raises and lowers in the same manner as does the Louden Steel Track Carrier. Hence it provides for easy, quick filling of the tub. The lifting power is secured by a worm gear hoist on the same principle used with the Louden Carrier for solid steel track. The main frame consists of two ¾-inch pipe shafts held in position by two heavy certified malleable iron castings. These castings form heavy, substantial sockets for receiving the swivel yokes which carry the wheels. This forms the swivel knee joint connection between the trolleys and main frame of the carrier (where the entire weight of the load is carried) and is one of the important and exclusive points of superiority found on all Louden Litter and Feed Carriers.

The horizontal pipes stand parallel with each other and about three inches apart. When the carrier tub is raised, the bail of the tub, which is also of pipe, enters between the two horizontal bars interlocking with them, forming a rigid frame. This prevents any endwise swinging or rocking motion and permits the carrier to be operated automatically a much greater distance than other wire track carriers. The full tub can be elevated easily and the double chains give strong support.

Louden Self-Acting Litter Carrier — Fig. 721

Specifications

Operates on 0000 Basic Steel Wire Track. (See pages 221-224 for track fittings.)

Body of tub is made of 20-gauge sheet steel; ends of 16-gauge sheet steel strongly reinforced.

Length of tub, 42 inches; width, 24 inches; depth, 15½ inches, outside measurements. Capacity, 7 bushels.

Track Wheels are roller bearing.

Diameter of Track Wheels, 6 inches.

Clearance necessary for Track Wheels, 6 inches.

Total clearance necessary, tub upright, 52 inches; tub dumped, 57 inches.

Shipping weight, 93 pounds.

The Self-Acting Carrier is like the Quick-Out Carrier except it is not fitted with a hoisting gear. Where it is not necessary to raise and lower the load this is the best litter carrier ever made to run on wire track. It will run the easiest and farthest, trip the most positive at any point along the track, and return to the barn without getting off the track.

Where the manure shed can be placed immediately opposite the stable door so the track may be run straight from the barn to the manure shed, or if the practice is followed of piling the manure out in the yard, the Self-Acting Carrier is handy and quick and can be installed at very small expense.

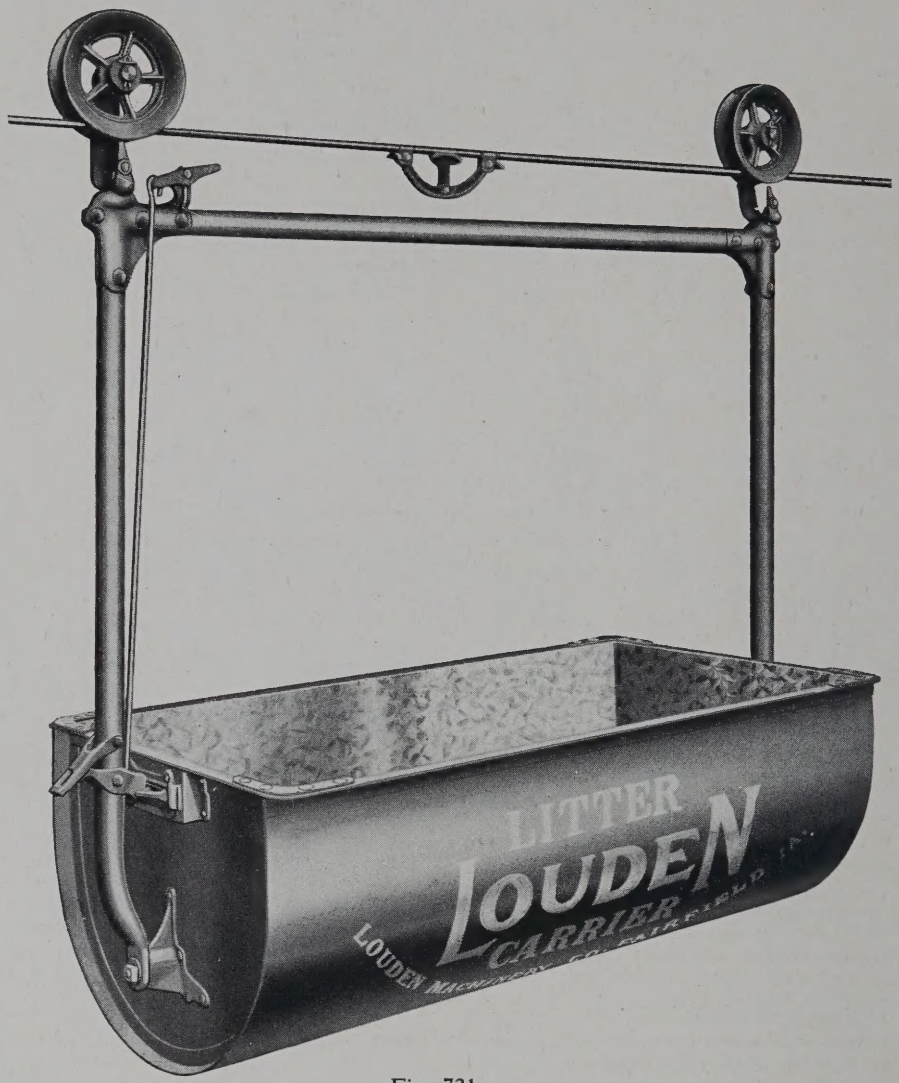


Fig. 721
Patented Oct. 6, 1908

In handling the work you simply shovel the litter and manure into the carrier tub and when the tub is full get behind the carrier and give it a good strong push out into the yard. The trip which fastens to the track at the point of unloading is adjustable and can be moved from place to place. When the loaded carrier reaches the trip the latch on the carrier tub is released and the tub turns over, dumping out its load. At the end of the track is the Spring End Stop. This prevents the carrier from running into the post or building at the end of the track and also gives the carrier a start on its return trip to the barn.

The outer end of the track should be elevated about 12 to 18 inches above the inside end—the carrier comes back quickly and smoothly. While the carrier is making the trip out to the shed or yard, the man in the barn is busy getting ready for another load. It makes quick, easy and satisfactory work.

The Strong — Rigid — Durable Frame

The frame of the carrier is solidly constructed of heavy inch pipe, held together at the ends by a double set of malleable iron corner clamps. These clamps form the swivel socket into which fit the lower end of the yokes carrying the wheels. This forms the strong, easy working swivel knee joint between the carrier trucks and the main frame where the weight of the load hangs, and which is found on all Louden Carriers.

Special Features of Louden Wire Track Carriers

The Quick-Out Carrier and the Self-Acting Carrier (shown on preceding pages) were designed for use in barns where the work is not so heavy and where the arrangement of track is very simple, requiring few switches or curves. These carriers really operate best where the track runs in a straight line. When loaded, a good push will send the carriers out into the yard 60 to 80 feet, where they will empty themselves and return automatically to the barn. The carriers cannot be operated automatically around curves or over switches. Where curves and switches are necessary the carrier must always be followed until the last curve or switch is passed and from that point it can be sent out to the end of the track and will automatically return.

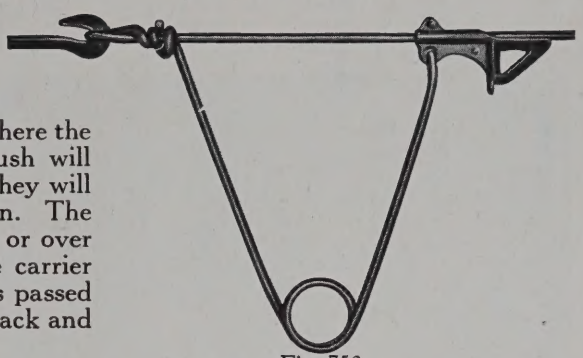


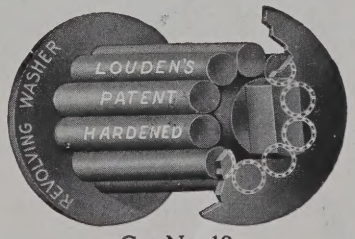
Fig. 753
Spring End Stop
Patented
Sept. 1, 1908

Strong, Swivel, Carrier Trucks

Both the Quick-Out and Self-Acting Carriers are fitted with swivel trucks. This truck frame or supporting frame for the carrier wheel is of heavy malleable iron. At the upper end of this casting is fitted the steel axle on which the wheels turn. At the lower end the truck is joined on to the main frame of the carrier by means of a swivel joint—one of the strong features in all Louden Carriers. On the upper side of the truck there is a small keeper which prevents the wheels from getting off the track. These special swivel trucks allow the carriers to be operated around very short curves and over switches with perfect ease and absolute safety.

Heavy, Easy Running Roller Bearing Wheels

The wheels are made of best quality of gray iron. They are 6 inches in diameter. The wheels have deep, wide grooves, turned perfectly true, and these are supplemented by a small groove in the middle to fit the wire. The small groove holds the wheels in line and prevents the wobbling motion which so greatly retards speed and which is a serious objection in other makes of wire track litter carriers. The spokes in the wheel are heavy and the wheels turn on roller bearings.



Cut No. 19

The wheels are fitted with our special case hardened steel roller bearings. These bearings are of the finest steel, turned perfectly true. Fifteen of them in each wheel revolve around a tempered steel axle. On each end of the axle (see Cut No. 19) there is a revolving washer which prevents the friction that would be produced if the ends of the rollers were allowed to rub against the castings. This is one more important Louden improvement covered by our patents. Our wire track carriers can be operated a greater distance with less exertion than any other light carrier made.

The Tub — Spring End Stop and Trip

The tub for both the Quick-Out and Self-Acting Carrier is made 42 inches long. It is 24 inches wide and 15½ inches deep. The ends, sides and bottom of the tub are made of high-grade galvanized steel reinforced by strong angle iron at the upper edges.

An important improvement with our Wire Track Litter Carrier is the patent Spring End Stop. (See Fig. 753.) This end stop not only prevents the wheels from jumping the track no matter how hard the carrier may be running, but it also starts the carrier back on its return trip.

The trip for both the Quick-Out and Self-Acting Litter Carrier is adjustable. The trip can be placed on the track at any point, and can be moved from place to place on the track without removing any bolts. In fact the position of the trip may be shifted from the ground with a fork or shovel handle.

The trip is so arranged that when the carrier reaches it, the latch on the end of the tub is released, allowing the tub to turn over and empty its load. Another good feature of our tripping device on the wire track carriers is the fact that when tripped they stay tripped. After striking the trip on the track the carrier tub will turn over and cannot be latched in upright position until the latch is properly set. The setting of the latch is done without an instant's delay when the carrier comes back to the barn.

Combination Steel and Rod Track for Quick-Out and Self-Acting Carriers

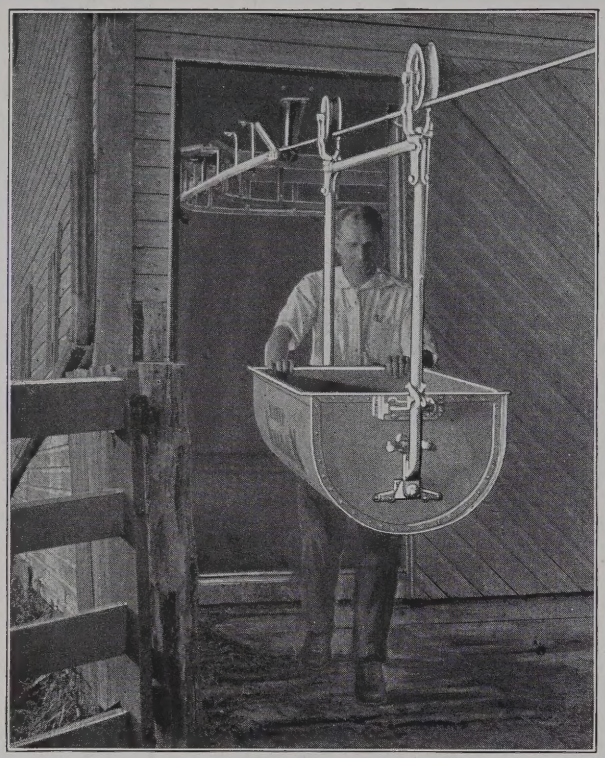


Fig. 1287. Using the Louden Self-Acting Carrier on the Louden Combination Steel and Rod Track.

Rigid Track

Made of 14 gauge steel, bent "C" shaped to give it great strength and rigidity. Depth, 1¾ inches; width, ½ inch. Carried in 10-ft. lengths. Wt., per foot, 1 lb. Hangers of certified malleable iron and steel.

Rod Track

Made of 0000 basic steel wire. Diameter, $\frac{15}{32}$ inch; weight per foot, 6½ ounces. The rod track is anchored to a post in the yard by means of a tension bolt in the same manner as for our regular rod track carriers.

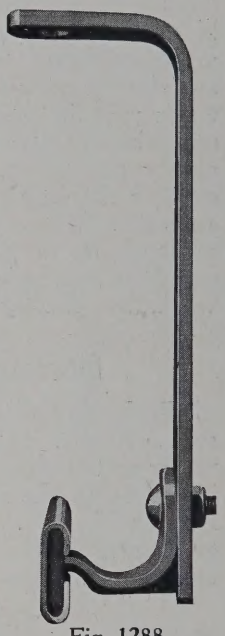


Fig. 1288 Hanger for Combination Track.

Advantages of Combination Track

Our combination steel and rod track arrangement has many of the advantages of both the steel and the rod track outfits, and is ideal for small barns where a carrier of not more than seven bushels capacity is needed.

Rod track is not satisfactory inside the barn where curves and switches are used. The steel track used in our combination track arrangement is more substantial and rigid, and does not subject the barn timbers to so great a strain as does the rod track.

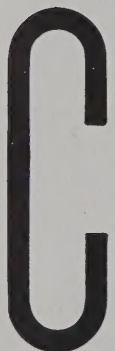
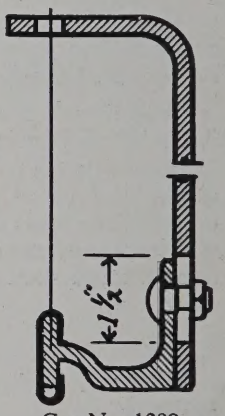


Fig. 1293 Section of Track.

With the advantages of the steel track in the barn this arrangement combines the advantages of the rod track in the yard.

It isn't necessary to follow the loaded carrier into the yard. A strong, steady shove will send it out from sixty to eighty feet, where it dumps automatically at any desired point and returns to the barn by gravity. This feature saves time, and is especially appreciated in bad weather, or when the yard is muddy.

The Louden combination track arrangement does not require a special carrier or special track wheels. Either the Quick-Out Carrier, page 193, or the Self-Acting Carrier, page 194, may be used. If you already have one of these carriers installed in your barn with complete rod track arrangement, and wish to substitute the combination track, you may do so without making any change in the carrier.



Cut No. 1289 Cross Section of Combination Track and Hanger.

Construction and Installation of Track

The rigid track is made of 14 gauge steel, bent in the shape of letter "C." This form gives it ample strength and rigidity for any load that can be placed in either of the carriers that operate on it. Fig. 1293 shows a cross section of the track. It is regularly carried in 10-foot lengths.

The track hanger consists of two parts, connected by a short bolt, between which there is an adjustment of 1½ inches to take care of any unevenness in the joists to which the track is hung. This adjustment is secured by means of a slot (Cut No. 1289) in which the connecting bolt may be set at any point and the hanger lowered or raised as desired. The hanger provides 12½ inches of clearance between track and joists when the adjustment is at center.

Combination Steel and Rod Track — Continued

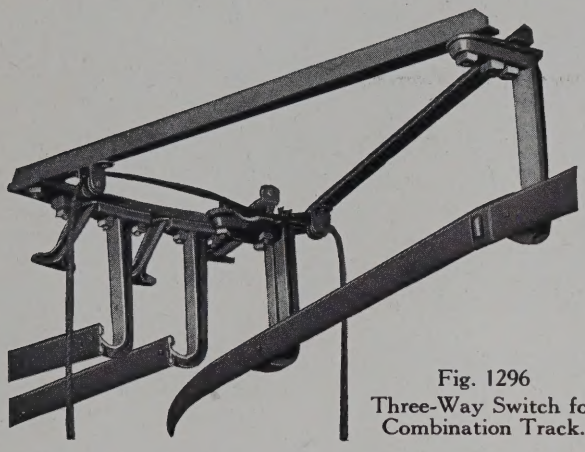


Fig. 1296
Three-Way Switch for Combination Track.

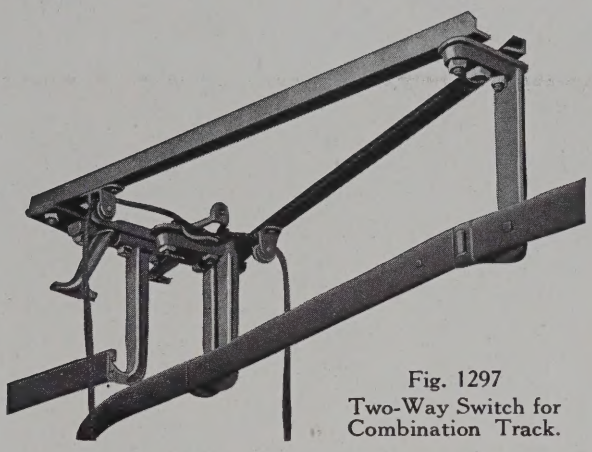


Fig. 1297
Two-Way Switch for Combination Track.

The lower part of the hanger fits inside the track, as shown in Cut No. 1289. The support is immediately beneath the wheels of the carrier; no chance for the track to buckle with a heavy load. All the hangers required for each section of track are slid into the track from the end before it is hung. The hangers are small enough to work loosely inside the track and are easily adjusted.

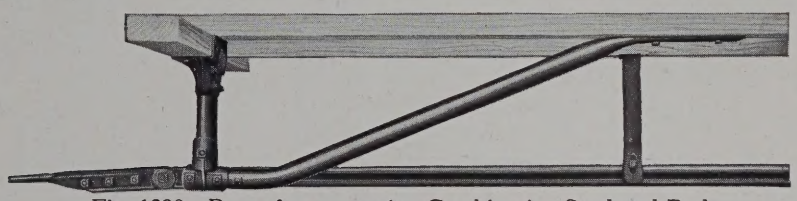


Fig. 1290. Brace for connecting Combination Steel and Rod Track together at the barn door.

A wedge-shaped key is furnished for each hanger. When the hanger is in place the key is dropped into the track and driven under it, as shown in Fig. 1291. This prevents rattling and allows no end play in the track. The upper part of the hanger is made of $\frac{1}{4}$x$1\frac{1}{2}$-inch steel. The lower part (which fits inside the track) is made of certified malleable iron. The hanger is secured to the joist by means of a lag screw.

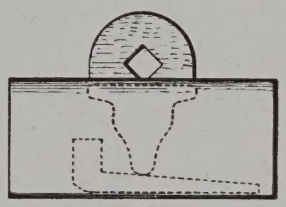
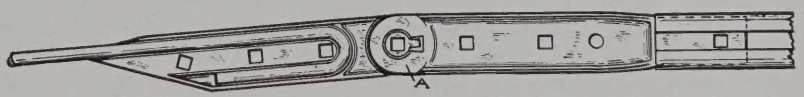


Fig. 1291. Showing how Hanger is wedged.

The rod track is connected to the rigid track just inside the door opening by means of a heavy, certified malleable iron clamp. One side of this clamp is removed and the connection is shown by Cut No. 1292. It is impossible to tension a rod track so tight that it is absolutely level—there is always a little sway in it. Therefore, the cut shows how the hinge A permits the clamp to turn so as to always align itself with any sway there might be. All three bolts back of the hinge extend through the brace illustrated in Fig. 1290, and thereby place the entire strain from the wire track onto the solid brace and not on the rigid track. The track is smooth at the point of transfer and does not jostle the carrier as it passes from the rod to the rigid track. The hinge in the connecting clamp at A is of great importance.

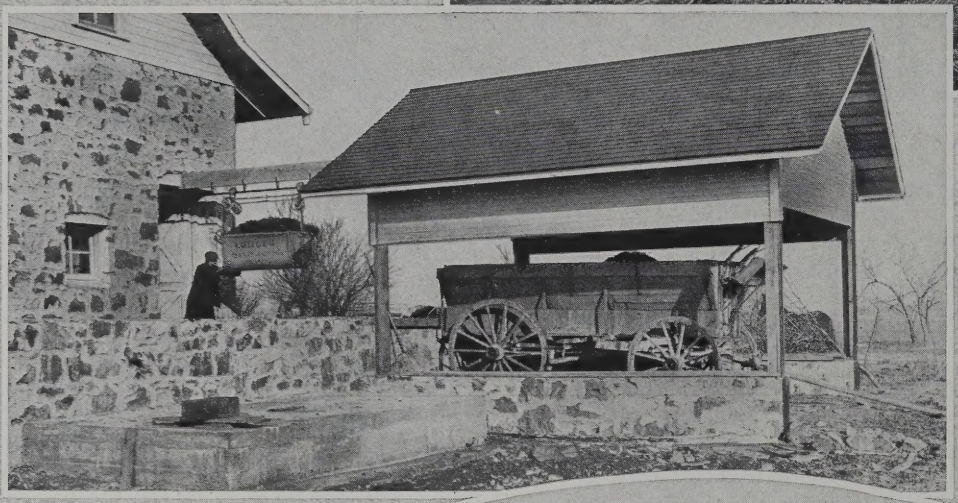


Cut No. 1292. Side removed to show how Steel and Rod Tracks are hinged together. No chance to pull apart or break the Rod Track at the connection—Clamp always aligns with sway in Rod Track.

The ordinary connection clamp is made in one piece with no flexibility. As the loaded carrier goes from the rigid track onto the tensioned rod track there is a give and if the clamp does not align itself with this give the rod stretches and in a short time breaks off at the connecting clamp. The hinge at A permits the Louden connecting clamp to turn with the give as the load goes on the rod track, and completely eliminates all strain which might eventually cause the rod to stretch and break. This is the most important improvement ever made on the rigid-rod track system—be sure you have it in the system you install.

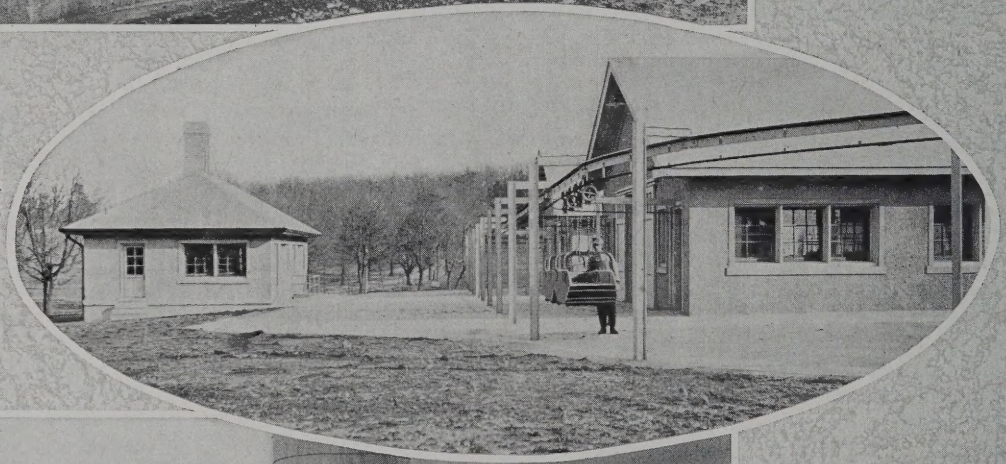
The brace (Fig. 1290) is 54 inches long and provides the most secure anchorage ever devised for a rod track. It is made reversible. The heavy casting to which it is connected at the lower end is bolted through the door jamb, as illustrated. It allows 8 inches clearance between the jamb and the track. The rod track is anchored to a post in the yard as described on page 222.

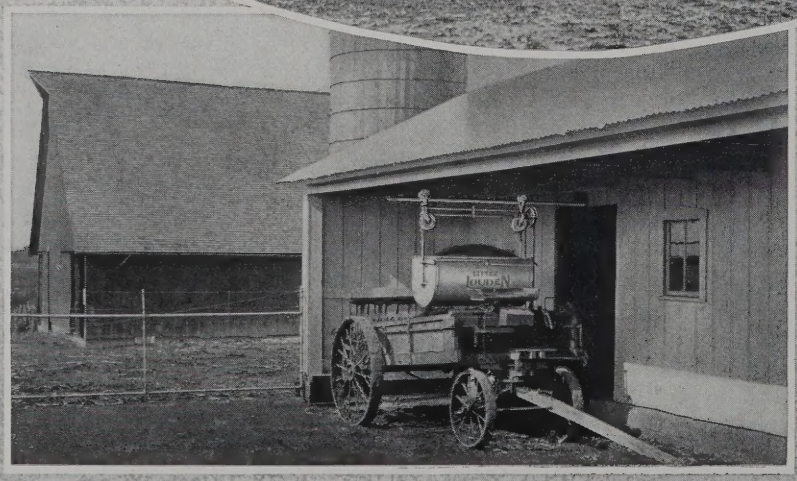
"Horrible example" of manure dumped around barn in yard—wasteful, unsightly—insanitary—drudgery.



No waste, less labor, only one handling—cleaner surroundings with the Louden Carrier.

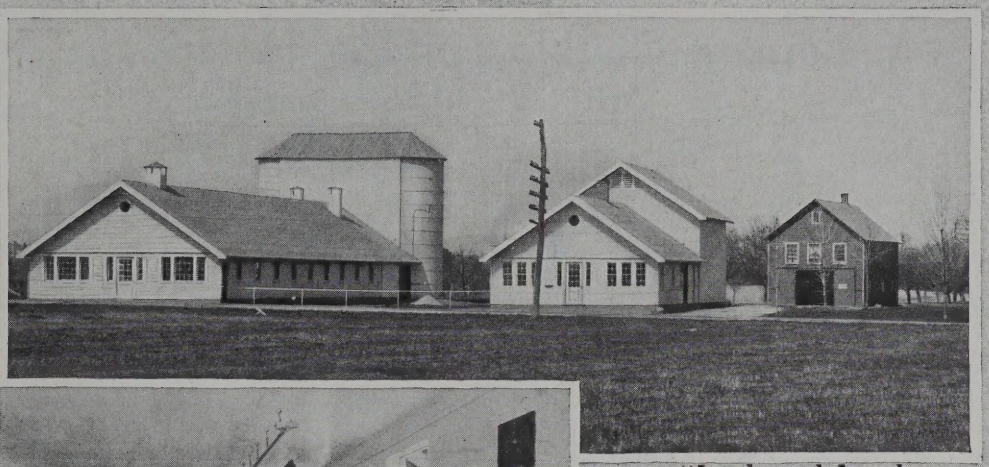
U. S. Government Soldiers' Home, Washington, D. C. uses Louden Feed and Litter Carriers throughout their barns.

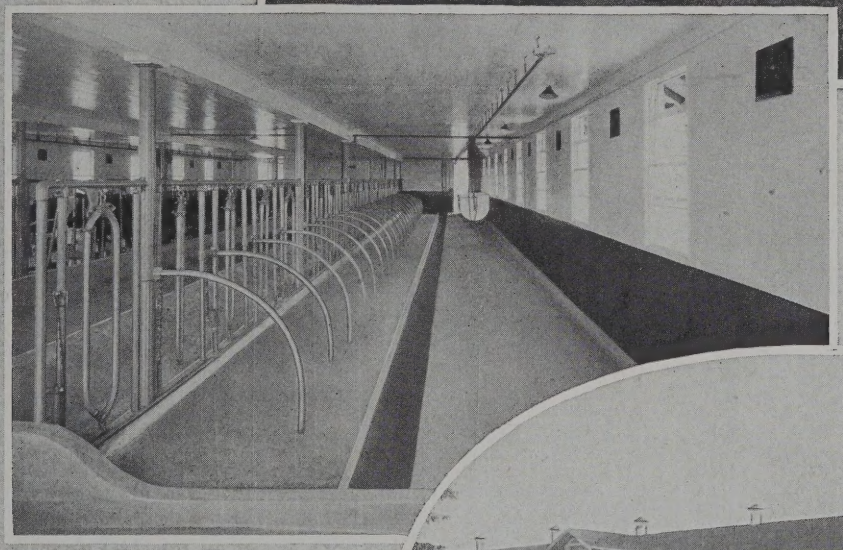




From barn to spreader in the Louden Carrier saves the liquid manure—does the job quicker.

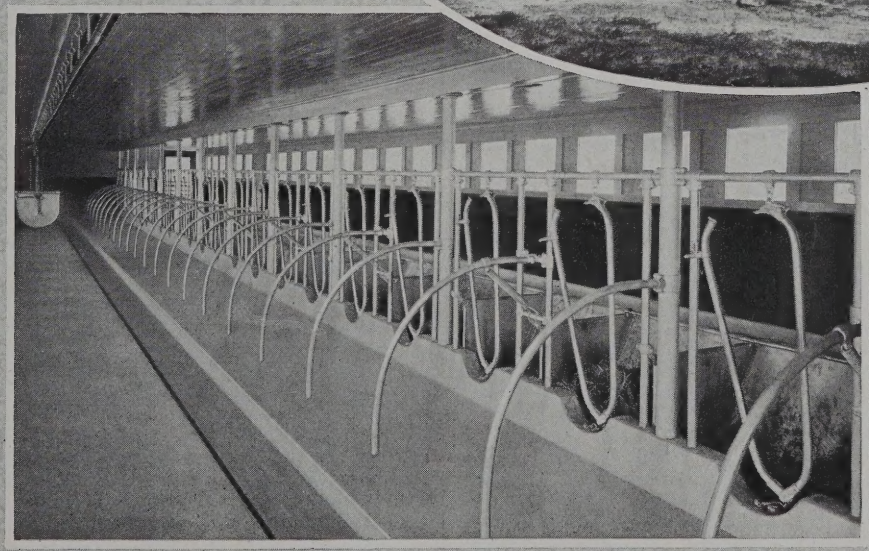
The Winters Farms
Bethlehem Center
Road,
Albany, N. Y.





"I selected Louden Equipment because I thought it was the best, although I could have purchased other standard equipment for less money."
Harry B. Winters
Treas. N. Y. State
Agr. Soc.

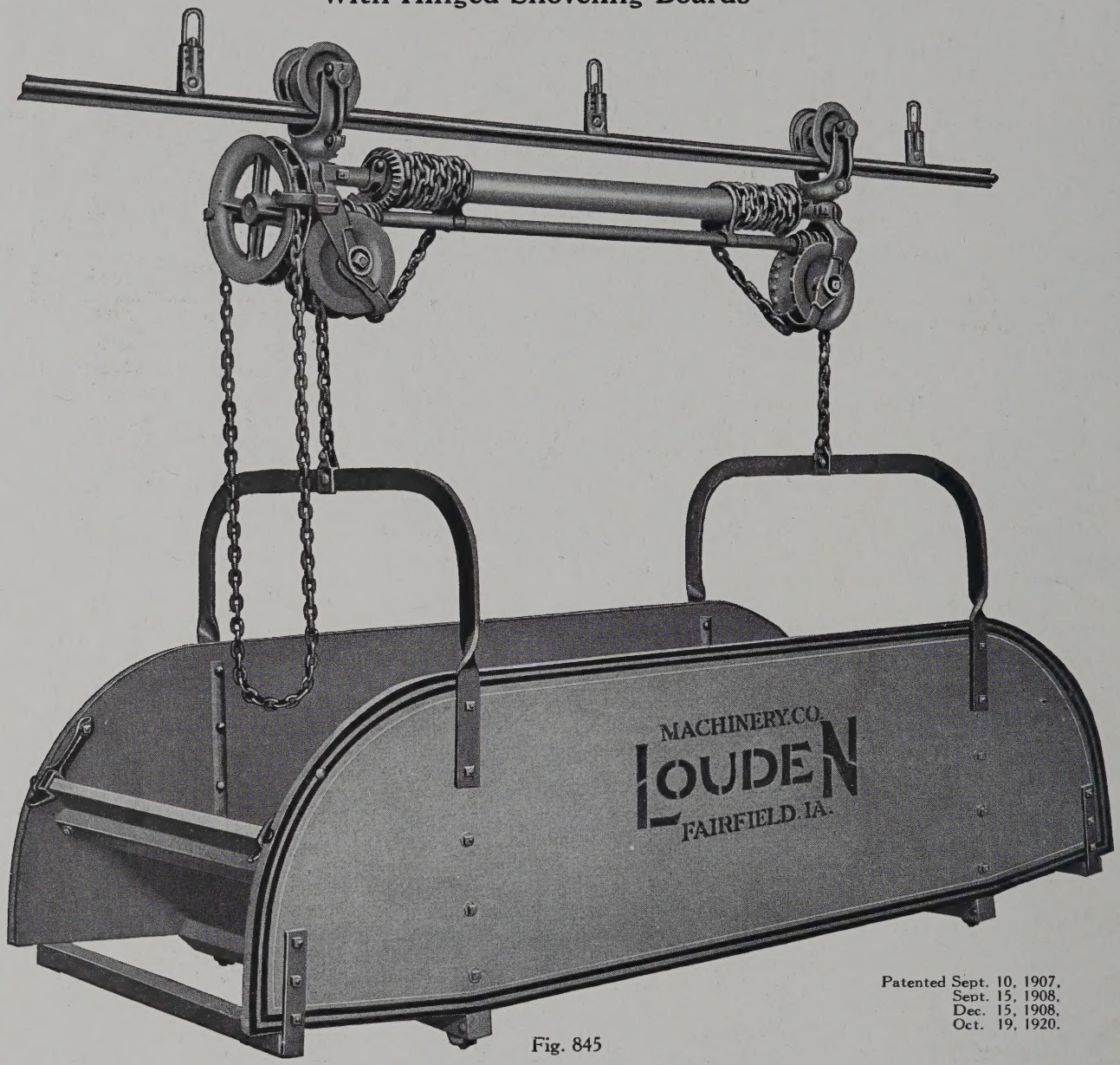
"We cannot say too many good things about Louden Equipment."
William Baker,
Birmingham, Ala.



Louden Equipment keeps the Baker barn, both inside and outside clean.

Louden Double End Feed Carrier — Fig. 845

With Hinged Shoveling Boards



Patented Sept. 10, 1907,
Sept. 15, 1908,
Dec. 15, 1908,
Oct. 19, 1920.

Fig. 845

Specifications

Feed Box: Made out of No. 1 thoroughly seasoned, kiln dried wood. Corners and edges are heavily reinforced with bar steel. Shoveling boards at each end are hinged so that they may be lowered level with the floor of the box or made sloping as shown in cut. Hence contents can be removed from box easily regardless of what position it may be in.

Capacity: Length of box, 78½ inches; width, 29 inches; depth, 20 inches. Capacity, full 16 bushels. Box is fitted to regularly raise and lower 7 feet; may be fitted to raise and lower as much as 20 feet at slight additional cost.

Hoist: Worm gear exactly like the Louden Steel Track Litter Carrier gear shown on pages 188-189—one pound pull on hand chain raises 40 pounds in box. Hence a boy can easily operate it. No chain sprockets or clutches to get out of order, constantly cause trouble or accidents. Gear made of certified malleable iron and steel—strong, tough and durable.

Lifting Chains: Electric weld one piece links made out of chain steel $\frac{9}{32}$" in diameter—heavy, smooth, exceptionally strong. Total clearance necessary when box is raised, 56 in.

Track Wheels: 5 inches in diameter and are *roller bearing.* A quality construction that assures extreme ease of operation. Wheel clearance necessary, 5 inches. Weight of load is carried *directly* under center of track and wheels.

Track: Weighs 2 pounds per foot. Much heavier than ordinary strap iron track. Trolleys cannot jump track. Track hangers are adjustable insuring ease of accurate erection.

Weight: Approximately 250 pounds.

Saves Feed — Saves Many Steps

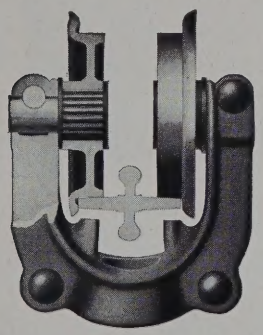
There are a great many advantages in having a Feed Carrier. A carrier can be run under the silo chute or spout from grain bins, and enough feed loaded into the carrier to feed as many head of stock as would require 10 trips where a basket is used. With a feed carrier operating on an overhead track you always have clear right of way, with no obstructions to hinder or take time in removing. You can run the carrier along the feed alley in your barn or hog house, out over the feed bunks or platforms in the yard, distribute the feed and get through with that part of the work in less than half the time it would take you otherwise, and it keeps the stock from getting fretful or impatient. If you are weighing your feed, attach your scales to the carrier frame and weigh out the feed as you go along. If you are feeding a balanced ration, partitions can be placed in the carrier at small extra cost, so two or more kinds of feed can be handled at the same time.

You will often find it convenient to have your feed track connected by means of switches with the track for the litter carrier. By doing this you can get your feed carrier to all parts of the stable, through narrow alleys, and where it would not be possible to operate a truck running on the floor. The tracks for the Louden Feed Carrier and the Louden Litter Carrier are the same, and can be connected up to secure any sort of track arrangement your building may call for.

The Louden Double End Feed Carrier

The Louden Double End Feed Carrier is a large carrier, built extra strong for heavy work. Each end of the carrier has a shoveling board similar to an end scoop on a wagon box. These shoveling boards are hinged so that they may be left down level with the bottom of the box or, if preferred, made sloping as shown in the cut, by simply raising them until they automatically latch in place. Regardless of what the contents of the box is, this insures getting it out in the easiest and most convenient possible way. Users tell us this is the handiest and most practical feature ever embodied in a feed carrier. The carrier is furnished regularly with the Louden Worm Gear Hoisting Device.

The Worm Gear Hoisting Device is identically the same as that used with the Louden Steel Track Litter Carrier shown on pages 188-189, and is the most powerful lifting device used with any carrier. It is a marvel of efficiency and simplicity. The worm castings are solidly riveted to the main shaft. These engage the lugs on the special gear wheel, causing it to revolve. This gives a lifting power at the ratio of 40 to 1. One pound pull on the hand chain will lift 40 pounds in the carrier box. (See cut-away view of gear on page 189.) One man can easily raise and lower 600 or 800 pounds. The track wheels being large and roller bearing, the loaded carrier can be pushed along the track with scarcely an effort. There are no brakes, clutches or ratchets to bother with, and hence there is absolutely no danger of the carrier suddenly dropping down and smashing the box or injuring the operator.



Construction of Track Wheels

Each trolley on our Feed Carriers is fitted with 17 tempered steel roller bearings. Size of bearings, 3/16 x 1 inch. These revolve around a 7/8-inch cold rolled steel axle or shaft. Louden Trolleys with roller bearings travel easily and outlast any other trolleys of this kind made.

Heavy, Smooth Lifting Chains

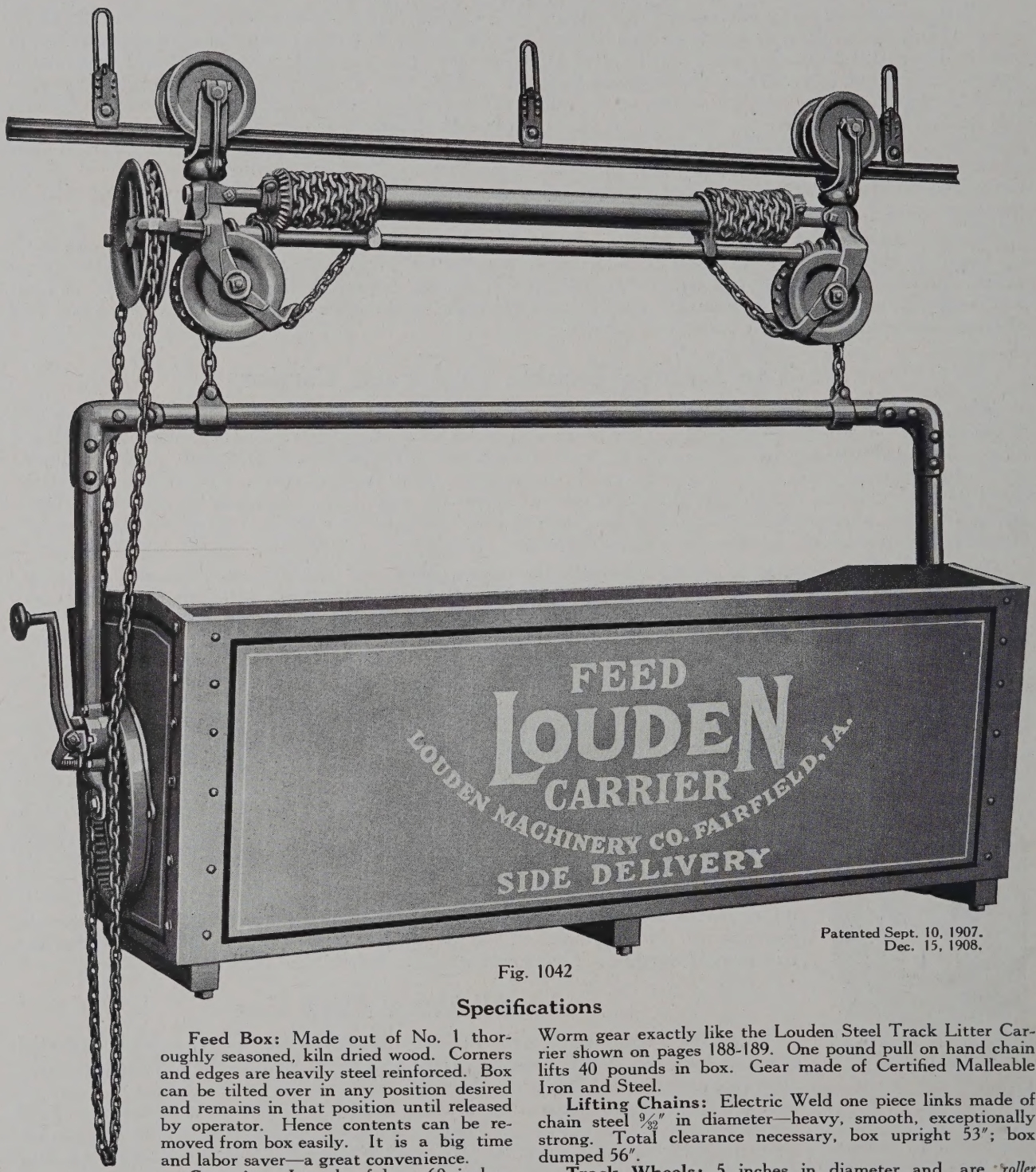
The Louden Feed Carrier has the same heavy smooth electric weld one piece link lifting chains used on the Louden Steel Track Carrier. These chains fit into pockets in the gear wheels at each end and the loose surplus chain winds up on the storage drum above. Hence the entire weight of the load is lifted from directly under center of the track wheels, center of the track, track hangers and supporting joists above. Not an ounce of the weight goes onto the large shaft connecting the two ends of the gear. Thus great strength is embodied in the Louden Carrier.

An All Wood Feed Box

And the Louden Feed Carrier box is made entirely out of lumber—No. 1 selected kiln dried lumber. We do not use sheet metal in the floor of the box because silage soon eats a metal out—then too, there is always the chance of the silage fork puncturing it full of holes as the silage is being forked out. The wood floor assures long life and because the lumber used is tongued and grooved it is just as smooth for shoveling over as is the sheet metal. The top edges of the box are protected with regular wagon box straps and all corners are heavily reinforced and strongly braced.

Compare the box—the worm hoisting gear—the roller bearing wheels—track—track hangers and other details of the Louden Carrier with similar parts on any feed carrier made. The Louden embodies quality—great strength and the factors that make for long life.

Louden Improved Side Delivery Feed Carrier — Fig. 1042



Patented Sept. 10, 1907.
Dec. 15, 1908.

Fig. 1042

Specifications

Feed Box: Made out of No. 1 thoroughly seasoned, kiln dried wood. Corners and edges are heavily steel reinforced. Box can be tilted over in any position desired and remains in that position until released by operator. Hence contents can be removed from box easily. It is a big time and labor saver—a great convenience.

Capacity: Length of box, 60 inches; width, 31¼ inches; depth, 21 inches. Capacity, 16 bushels. Box is fitted to regularly raise and lower 7 feet; may be fitted to raise and lower as much as 20 feet at slight additional cost.

Hoist: Regularly fitted with adjustable chain truck as shown on opposite page or worm gear hoist as shown above. Worm gear exactly like the Louden Steel Track Litter Carrier shown on pages 188-189. One pound pull on hand chain lifts 40 pounds in box. Gear made of Certified Malleable Iron and Steel.

Lifting Chains: Electric Weld one piece links made of chain steel 9/32″ in diameter—heavy, smooth, exceptionally strong. Total clearance necessary, box upright 53″; box dumped 56″.

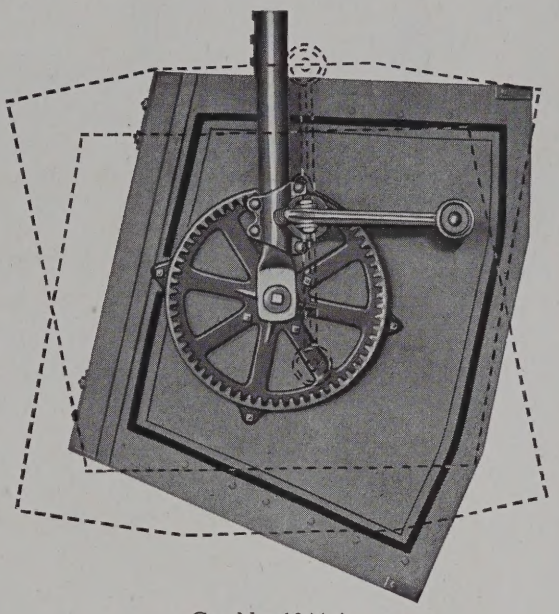
Track Wheels: 5 inches in diameter and are *roller bearing*. Wheel clearance necessary, 5 inches. Weight of load is carried *directly* under center of track and wheels.

Track: Weighs 2 pounds per foot. Much heavier than ordinary strap iron track. Wheels cannot jump off. Track hangers are adjustable insuring ease of accurate erection.

Weight: Approximately 225 pounds.

Louden Improved Side Delivery Carrier—Fig. 1042

A side delivery Feed Carrier is, in a number of respects, more convenient than shoveling the feed out of the end of an ordinary feed box. Where a large number of stock is to be fed, and it is practical to run the track close enough to the troughs or manger to dump directly from carrier, the Louden Improved Side Delivery Carrier will prove a great time and labor saver. This carrier is especially recommended for outdoor feeding where it is comparatively easy to arrange the troughs or bunks to accommodate a simple track arrangement.



Cut No. 1044-A

The gearing is very simple and well arranged and a boy can tip the box when it is full of grain or silage, and do it as safely and satisfactorily as a man. One turn of the crank will tip the box one-third way over as shown in Fig. 1044, allowing a part of the feed to empty, and will stay there till crank is given another turn, throwing the box half over. Three turns and the box is bottom side up, as shown in dotted lines Cut No. 1044-A and three more turns will revolve it all the way around. (Also shown by dotted lines.) The crank is pivoted on the end of the axle which carries a small gear that meshes in the large gear secured to the end of the box, and is provided with a spur which springs into the pockets in the face of the castings on which it is mounted, holding the feed box in any desired position. To rotate the box the handle of the crank is drawn out to release the spur from the pocket. When the operator lets go of the handle a spring throws it in as shown in the cuts, and forces the spur into the nearest pocket.

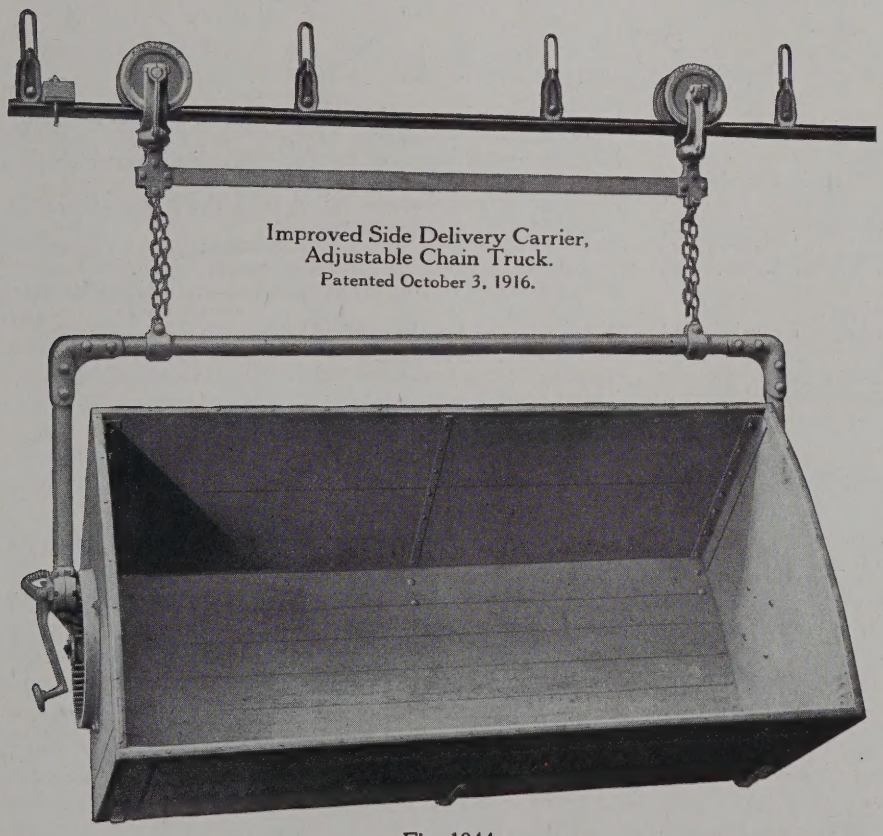


Fig. 1044

The Louden Improved Side Delivery Carrier will actually save over half the time required by the old method to feed. With a scarcity of farm help such as prevails at the present time, such a carrier is a necessity. It not only reduces the labor but makes possible the doing of other important work with the time that otherwise would be spent in feeding the stock.

Like all products bearing the name of Louden, the Improved Side Delivery Feed Carrier is the result of years of study. Each piece of wood that goes into the box is carefully selected and thoroughly seasoned. Each piece of metal that goes into the gears—trucks and tilting mechanism is the very best for the purpose that money can buy. Louden quality is evident throughout.

If you feed a considerable number of stock, this carrier will pay for itself in a short time by labor and feed saved.

Louden Feed Truck — Fig. 973

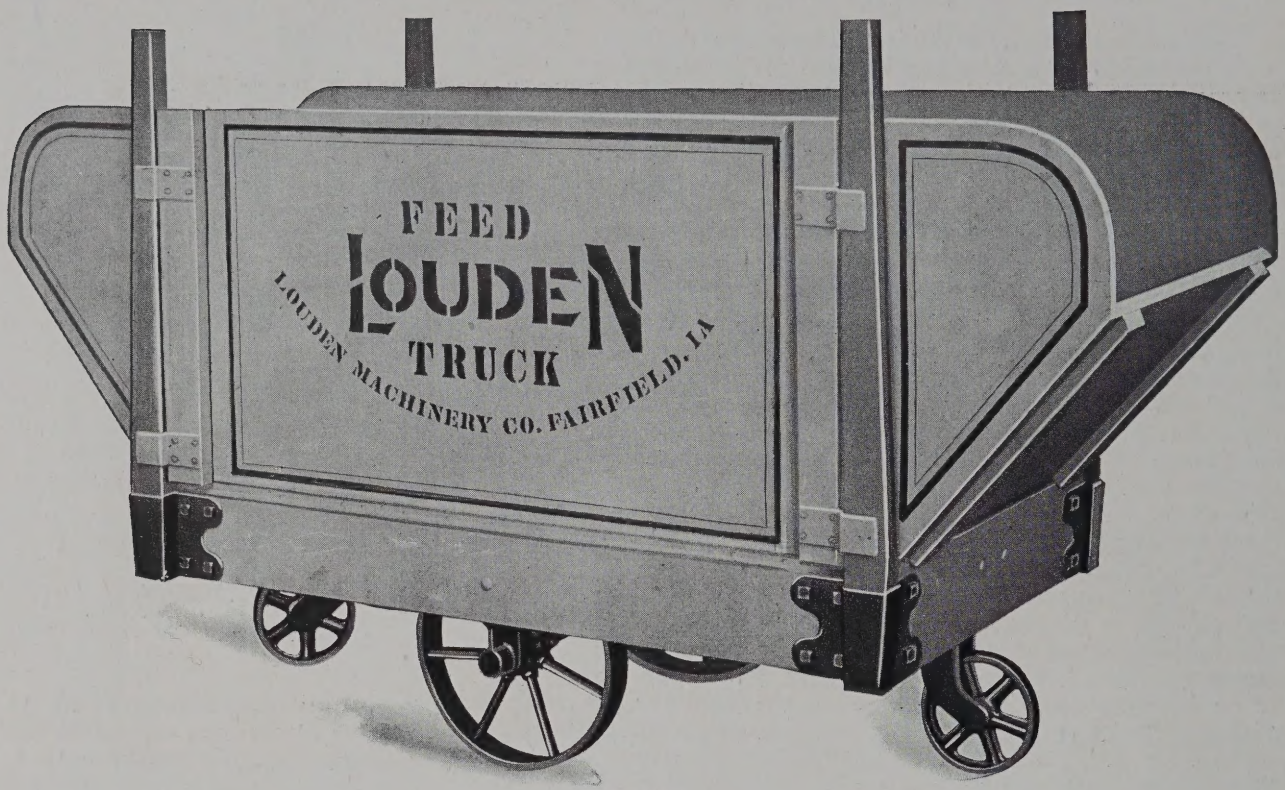


Fig. 973

Specifications

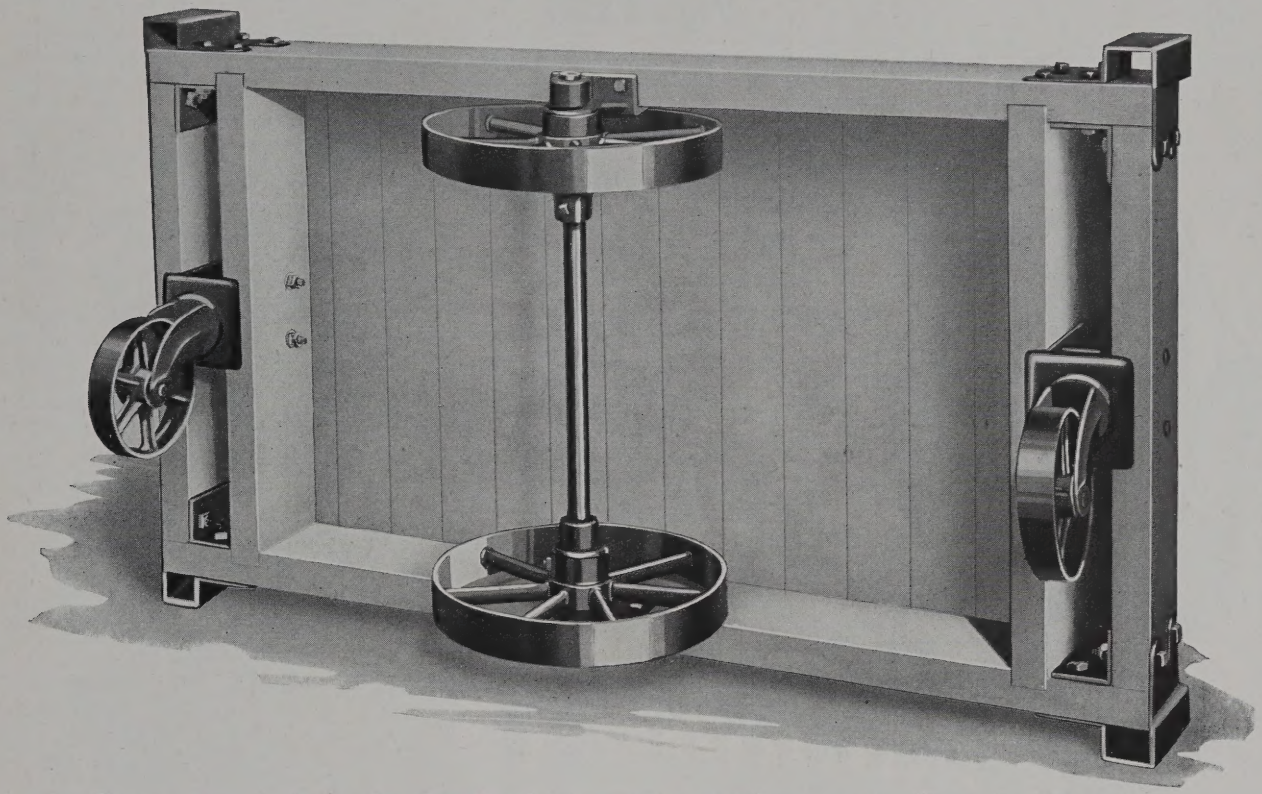
Capacity, 20 bushels.
Length of box, extreme end to end distance, 78 inches.
Width of box, 26 inches; depth, 25 inches.
All lumber used in the Louden Feed Truck is kiln dried—thoroughly seasoned.
Platform 54 inches long. Made of best grade 1-inch fir, tongued and grooved.
Frame of best grade 1½-inch by 6-inch hard maple, with double cross sills at ends.
Stakes of best grade hard maple, 3 feet long.
Sideboards quickly removable. Made of clear fir, reinforced with heavy strap iron.
2 heavy 1¾-inch wide strap iron shoveling strips, running full length of platform. Attached with countersunk screws.
4 inside corner braces of ⅛-inch steel angle iron, 2 inches by 2 inches by 5½ inches.
4 outside corner braces of certified malleable iron, which also act as stake holders.
These inside and outside braces hold the frame absolutely rigid and solid—prevent racking.
Diameter of large drive wheels, 14 inches.
Length of steel axle, 27 inches; diameter, 1 inch.
One swiveled caster wheel at each end of truck. Diameter, 7 inches.
Caster wheels special gray iron; drive wheels steel.
All wheels roller bearing.
Weight of truck complete, 333 pounds; as a stake and platform truck (without sideboards), 189 pounds.

The Louden Feed Truck, Fig. 973, with quickly removable side boards and sloping ends for easy scooping, is built in one size only, with a capacity of 20 bushels. It will feed a herd of 20 cows in one trip whereas two trips would be necessary with a 16-bushel truck, requiring close to double the time.

After feeding the grain and silage from the Louden Feed Truck, the side and end boards can quickly be lifted off, converting it into a handy platform truck ready to transport cans of milk to the milk house, haul sacked feed, move small gasoline engines and do many other odd trucking jobs. This is a big advantage of the Louden Feed Truck—one that cannot be obtained in a truck with sheet iron bottom, no platform and with non-removable side boards. The lightly constructed sheet iron bottomed truck is also easily punctured with the silage fork and quickly eaten through by the silage acid when the galvanized surface wears off. Contrast this construction with that of the Louden Feed Truck.

It is built with a platform of one-inch fir, tongued and grooved, on a frame of 1½-inch by 6-inch hard maple. The frame has double sills at each end to which the caster wheels are firmly attached. All four corners are strongly braced, both inside and out, by heavy steel and certified malleable iron braces solidly bolted in place. A Louden Feed Truck does not rack or spread. Its frame is as solid after years of service

Louden Feed Truck—Continued

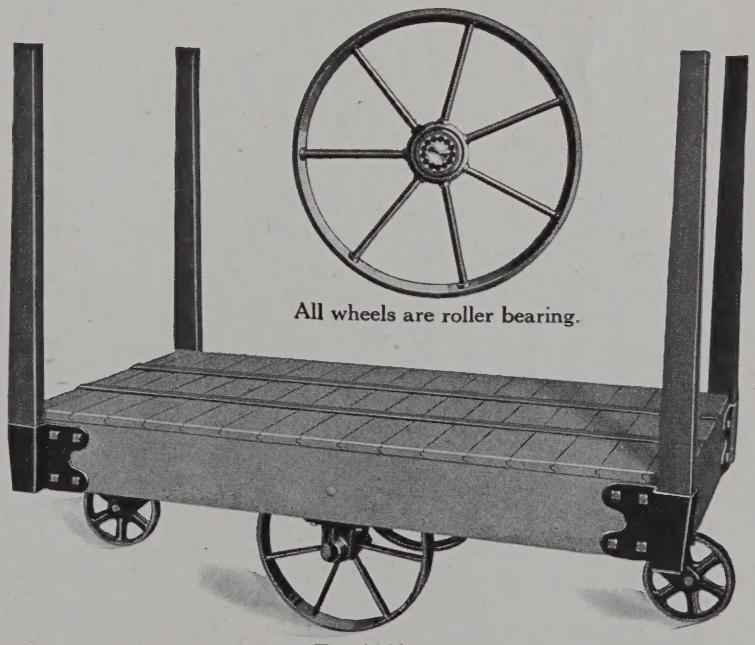


Bottom view of the Louden Feed Truck, showing its rugged construction. Frame is of heavy hard maple, with double sills at ends. Corners are solidly braced, both inside and out, and strongly bolted.

as it was the first day it was used. Stakes are of hard maple and exceedingly strong. The side and end boards, which are of clear fir strongly reinforced with heavy strap iron, can be removed or replaced in a moment. Two smooth, heavy iron shoveling strips run the full length of the platform and make shoveling easy—also prevent wear on platform floor. Each strip is fastened to floor by 19 countersunk screws.

Although larger in capacity and heavier built, Louden Feed Trucks push more easily than cheaply constructed trucks, especially over bumpy floors. The two large main wheels sit firmly in malleable castings and all wheels turn on roller bearings. The truck cannot be tipped over endways because of the caster wheels at each end. Drive wheel axles do not project beyond the edge of the platform to catch on corners, etc. The Louden Truck can be run right up against the manger or the wall.

The weight and actual measurements of the Louden Feed Truck, given under its specifications, clearly show its larger capacity and superior construction.

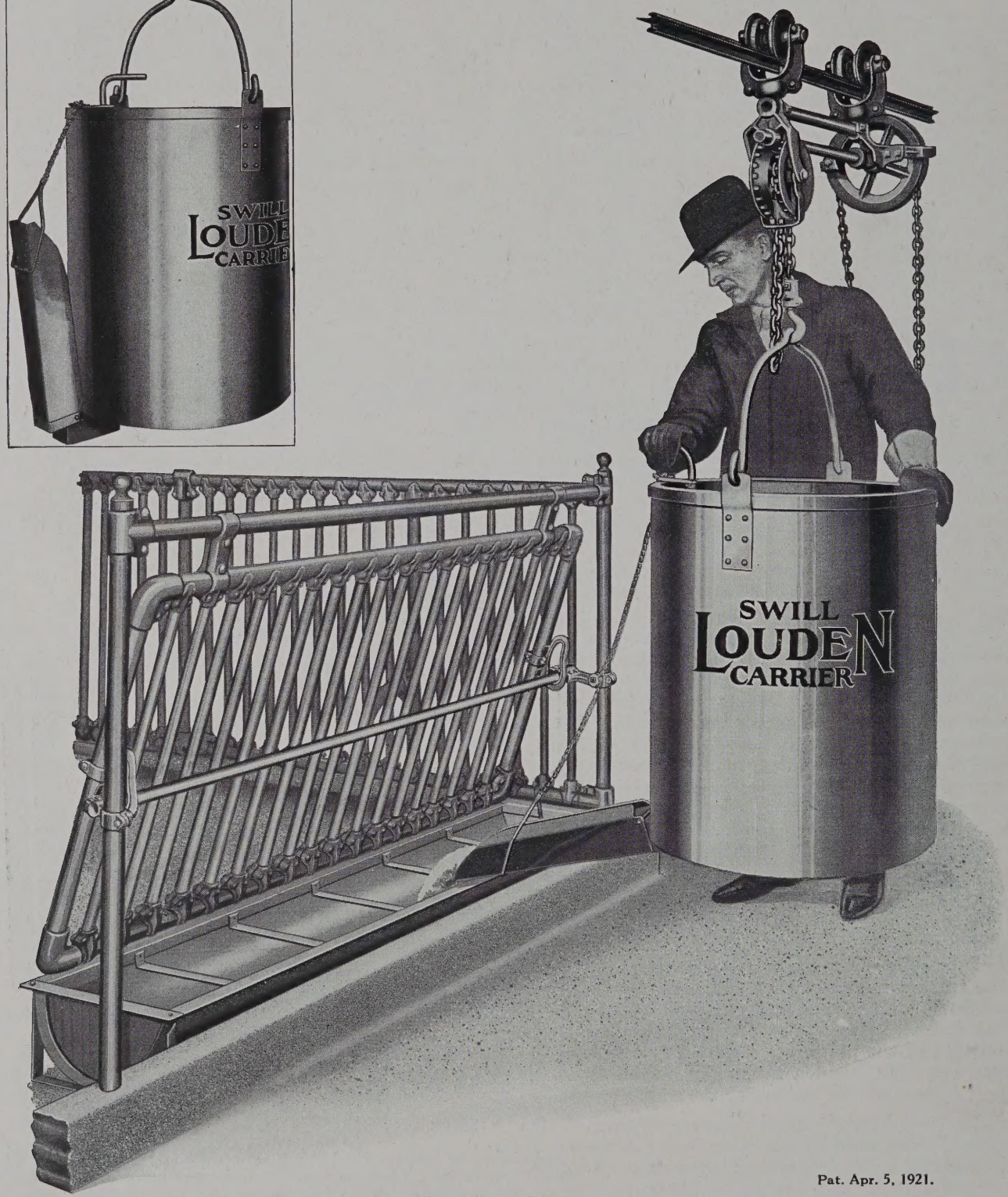


All wheels are roller bearing.

Fig. 1065

This shows the Louden Feed Truck, with sideboards removed, as a handy stake and platform truck for general purpose trucking. Notice the tongued and grooved platform and the steel shoveling strips.

The Louden Swill Carrier
Fig. 1366



Pat. Apr. 5, 1921.

The Louden Swill Carrier

Specifications

Diameter of tank, 24 inches. Depth of tank, 30 inches.
Distance from center of tank to end of spout, 33 inches.
Framework of tank made out of angle iron.
Tank made out of 18 gauge galvanized steel.
Tank welded together by electric welding process, the strongest possible weld.
Five-eighths inch steel bail on tank.
Bail hangers made out of heavy galvanized steel firmly riveted to tank.
All seams of tank are soldered on inside.
Valve opened and closed from lever on top of tank.
Valve castings made out of brass, accurately machined down to a tight fit.
Spout can be raised up against the side of tank when not in use.
Capacity of tank, 60 gallons.
Carrier fitted with famous Louden worm gear hoist.
Length of carrier, 27 inches.
Tank can be swiveled around from one side to the other.
Track wheels roller bearing. Weight, 135 pounds.

Whether for feeding into a hog trough under a tilting panel or a trough under a stationary panel, the Louden Swill Carrier works perfectly. It is really one of the handiest, most practical devices ever designed for convenience and the saving of labor in raising hogs.

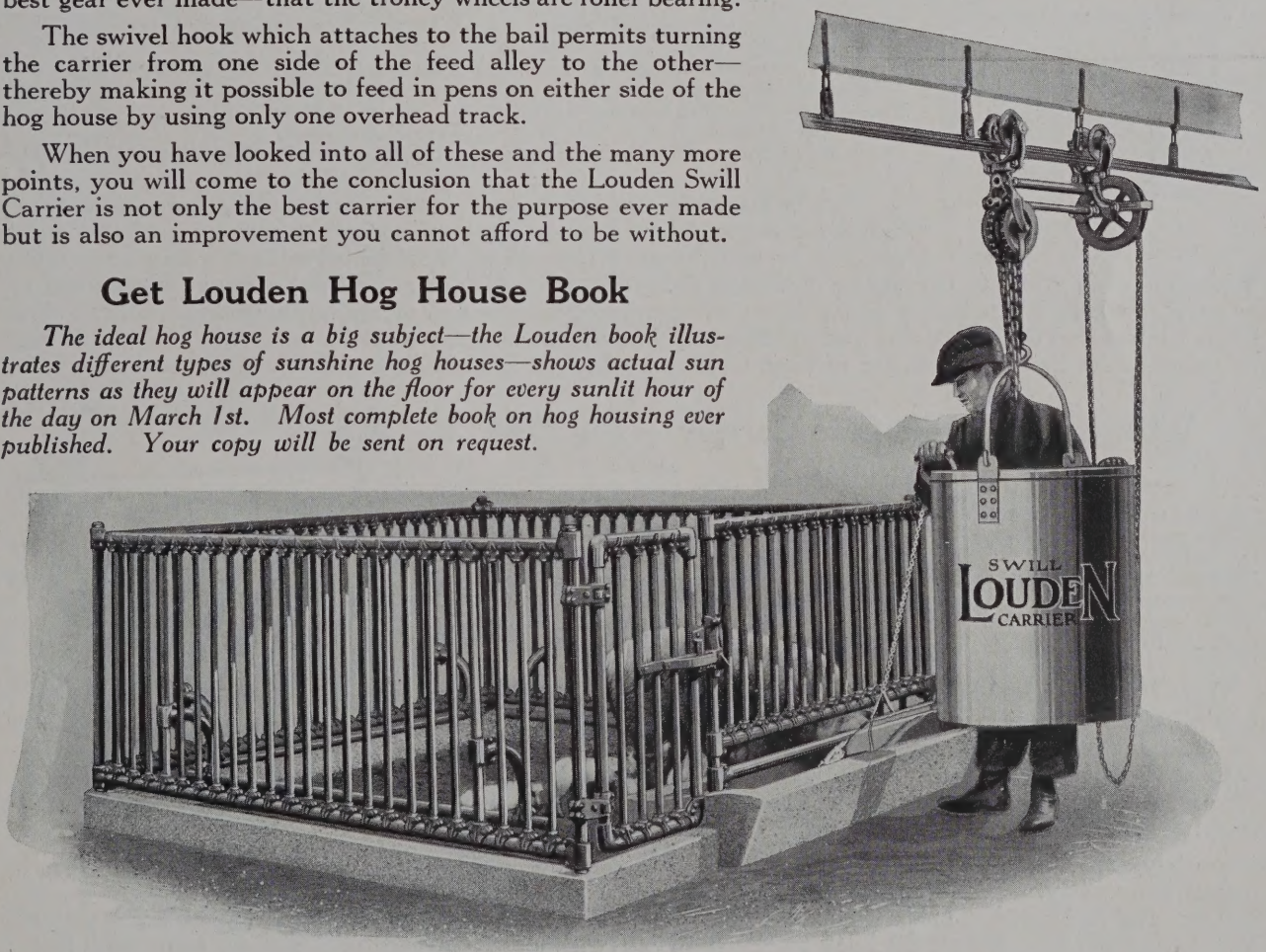
The Louden Swill Carrier is not just an ordinary carrier—quite the opposite—take for instance the lever for opening and closing the valve—it is located at the top of the tank—the operator doesn't even need to stoop over to release the contents of the tank into the trough. The valve proper is not in the spout where you are always getting your hands smeared with swill in opening and closing, but instead is located in the bottom of the tank where every drop of swill runs out. The construction of the valve is another point not to overlook. It is composed of two brass discs—operating on each other with their surfaces accurately machined, making the tightest possible fit and at the same time insuring easy operation in turning on and shutting off the flow of swill. Consider the fact that the gear—the raising and lowering device—is the famous Louden Worm Gear Hoist, acknowledged by its thousands upon thousands of users to be the best gear ever made—that the trolley wheels are roller bearing.

The swivel hook which attaches to the bail permits turning the carrier from one side of the feed alley to the other—thereby making it possible to feed in pens on either side of the hog house by using only one overhead track.

When you have looked into all of these and the many more points, you will come to the conclusion that the Louden Swill Carrier is not only the best carrier for the purpose ever made but is also an improvement you cannot afford to be without.

Get Louden Hog House Book

The ideal hog house is a big subject—the Louden book illustrates different types of sunshine hog houses—shows actual sun patterns as they will appear on the floor for every sunlit hour of the day on March 1st. Most complete book on hog housing ever published. Your copy will be sent on request.



Handling the Milk Quickly and Easily

Platform Milk Can Carrier — Fig. 802

Specifications

Operates on Louden Double Bead Steel Track, Fig. 571. (See pages 211 to 217 for Track and Track Fittings.)
Length of platform, 56 inches; width, 14 inches.
Track Wheels are roller bearing.
Diameter of Track Wheels, 5 inches.
Clearance necessary for Track Wheels, 5 inches.
Total clearance necessary for carrier, 66 inches.
Capacity, four railroad milk cans.
Shipping weight, 84 pounds.

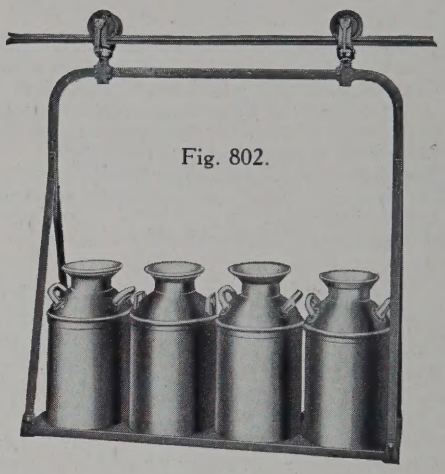


Fig. 802.

Fig. 802 is our Platform Milk Can Carrier for use on Louden double beaded steel track. Carrier consists of a wooden platform braced across bottom and reinforced around edges with angle iron. Carrier is suspended from swivel trucks same as our regular litter carriers and feed carriers by means of a heavy steel frame or bail. This carrier is built regularly to hold four railroad milk cans. Can be built in special sizes.

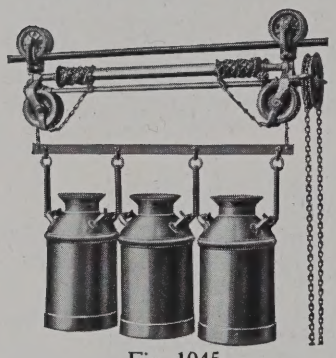


Fig. 1045.

Railroad Milk Can Carrier — Fig. 1045

Specifications

Operates on Louden Double Bead Steel Track, Fig. 571.
Capacity, three railroad milk cans.
Fitted regularly to raise and lower 7 feet; may be fitted to raise and lower greater distance at slight additional cost.
Track Wheels are roller bearing—exceptionally easy running.
Diameter of Track Wheels, 5 inches.
Total clearance necessary for Track Wheels, 5 inches.
Total clearance necessary for carrier loaded, 54 inches.
Length of Hand Chain, 11 feet, ends joined together. Where ceilings are high, longer chain may be furnished at slight additional cost.
Shipping weight, 100 pounds.

This is a convenient, inexpensive device for handling the milk cans at milking time, and for transporting them from the cow barn to the dairy building or milk house. The carrier is furnished with the famous Louden Worm Hoisting Gear, to operate on Louden Double Bead Steel Track. With this gear the cans can be lowered to within a few inches of the floor and operated from one end of the building to the other. This keeps the cans up out of the dirt and at the same time within easy reach of the milkers. The carrier may be operated on the regular Litter or Feed Carrier tracks. It is built to handle three railroad milk cans.

Wire Track Milk Can Carrier — Fig. 766

Specifications

Operates on 0000 Basic Steel Wire Track. (See pages 221 to 224 for Track and Track Fittings.)
Platform made of wood, reinforced by 2x4 supports underneath.
Total length of platform, 42 inches; width, 16 inches.
Capacity, three railroad milk cans.
Track Wheels are roller bearing.
Diameter of Track Wheels, 6 inches.
Total clearance necessary for Track Wheels, 6 inches.
Total clearance necessary, 56 inches.
Shipping weight, 73½ pounds.

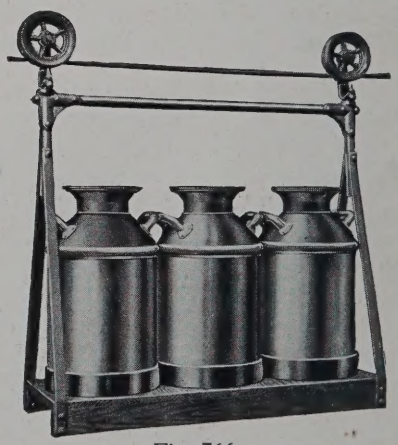


Fig. 766.

Fig. 766 is the Louden Platform Milk Can Carrier to run on wire track. Carries three large railroad cans. Fitted with swivel trucks and easy running roller bearing track wheels, like all Louden wire track litter carriers. Can be operated over switches and around curves.

By using our special Spring End Stops with latch to catch and hold the carrier and which we furnish on special orders, the man in the barn can safely send thirty gallons of milk to the milk house one hundred feet or more away. The latch will automatically catch and hold the carrier until unloaded. The man at the milk house can take charge of the milk, unlock the latch and by a little push send the carrier back to the barn, all without the necessary traveling back and forth.

Suspended Milk Can Carrier — Fig. 767

Specifications

Operates on 0000 Basic Steel Wire Track. (See pages 221 to 224 for details of Track and Fittings.)
Capacity, five ordinary hand milk or cream cans.
Track Wheels are roller bearing—exceptionally easy running.
Diameter of Track Wheels, 6 inches.
Total clearance necessary for Track Wheels, 6 inches.
Total clearance necessary for carrier, loaded, 50 inches.
Shipping weight, 45½ pounds.

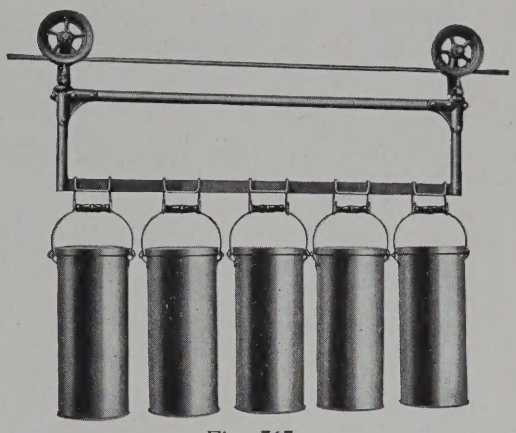


Fig. 767.
Patented Oct. 6, 1908.

Fig. 767 is our Suspended Milk Can Carrier for carrying five hand milk or cream cans. It operates on the regular wire or rod track. The hooks for attaching the cans to the carrier go as a complete part of each carrier. This carrier is also fitted with the swivel roller bearing track wheels to run over curves and switches. We can furnish this carrier with trucks to run on our solid steel track when desired. A time and labor saver.

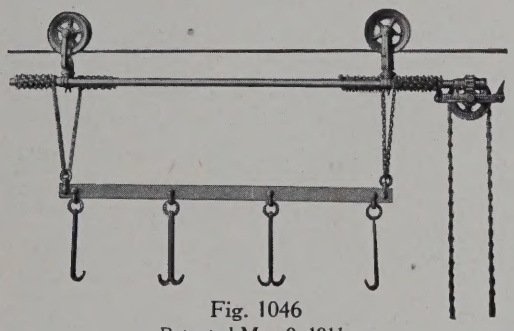


Fig. 1046
Patented May 9, 1911.

Railroad Milk Can Carrier for Wire Track — Fig. 1046

Specifications

Operates on 0000 Basic Steel Wire Track. (See pages 221 to 224 for complete details of Track and Track Fittings.)
Capacity, three regular sized railroad milk cans.
Fitted regularly to raise and lower as much as 3½ feet.
Track Wheels are roller bearing—exceptionally easy running.
Diameter of Track Wheels, 6 inches.
Clearance necessary for Track Wheels, 6 inches.
Total clearance necessary for carrier, loaded, 50 inches.
Length of hand chain, 8½ feet, ends joined together.
Frame, heavy bar steel.
Shipping weight, 60 pounds.

This carrier operates on the same principle as the regular Railroad Milk Can Carrier, Fig. 1045. It has a different gear, however, built to run on wire track. It will handle three railroad milk cans. The cans can be raised and lowered for convenience at milking time, and for lifting in and out of cooling tanks. This carrier is often used where the dairy building stands some distance from the cow barn, wire track being stretched between the buildings. The track may also be continued to the inside of the cow barn, and the cans kept in the place most convenient for the milkers. Saves heavy hand carrying at every milking time.

Louden Platform Hay Carrier — Fig. 809

Specifications

Operates on Louden Double Bead Steel Track, Fig. 571. (See pages 211 to 217 for complete details of Track and Track Fittings.)
Platform made of wood, reinforced by 2x4 supports underneath.
Length of platform, 72 inches; width, 30 inches.
Track Wheels are roller bearing—exceptionally easy running.
Diameter Track Wheels, 5 inches.
Clearance necessary for Track Wheels, 5 inches.
Total clearance necessary for carrier, 68 inches.
Weight, 130 pounds.

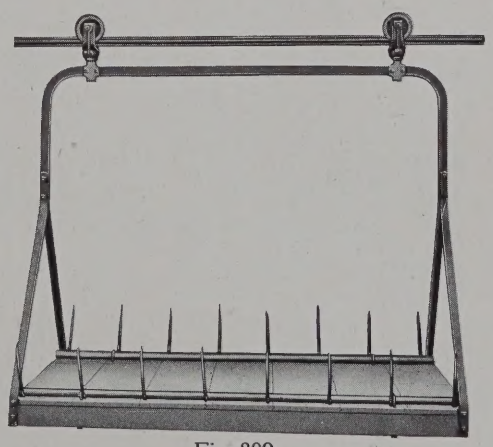
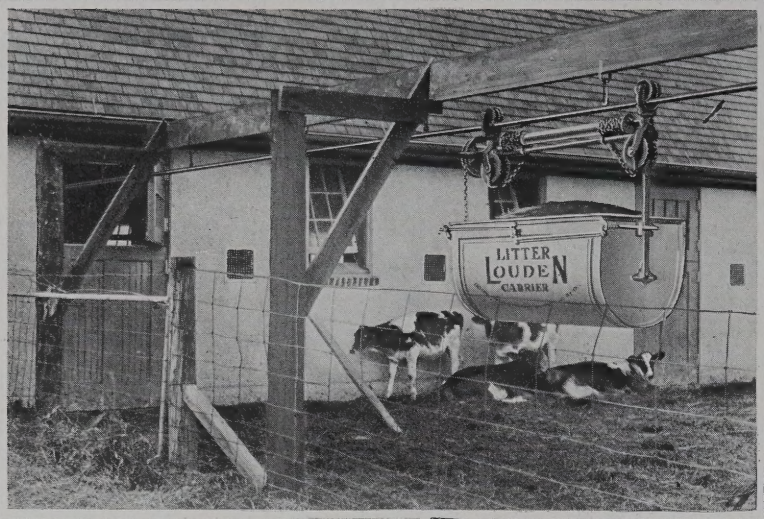


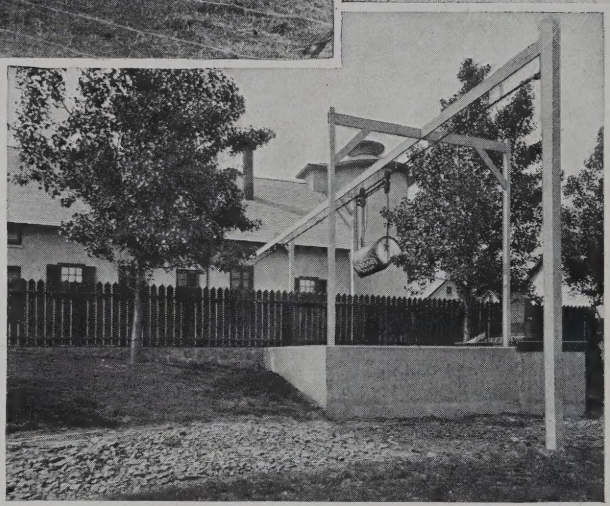
Fig. 809
Patented Sept. 15, 1908.

Fig. 809 shows a Platform Hay Carrier for conveying either loose or baled hay into the feed alleys. The carrier consists of a wood platform supported by means of a steel bail or frame from the trolleys. On each side of the carrier there is a special tubular shaft, into which are fitted steel teeth. These teeth can be folded down to lie flat on the platform, and the carrier may be used for handling baled hay, milk cans, etc. When hauling hay the steel teeth are opened outward as shown in the illustration. In this position they project into and hold the hay as it is being conveyed. A very large bunch of loose hay may be handled with this carrier. Saves time, saves work, and keeps down the dust.



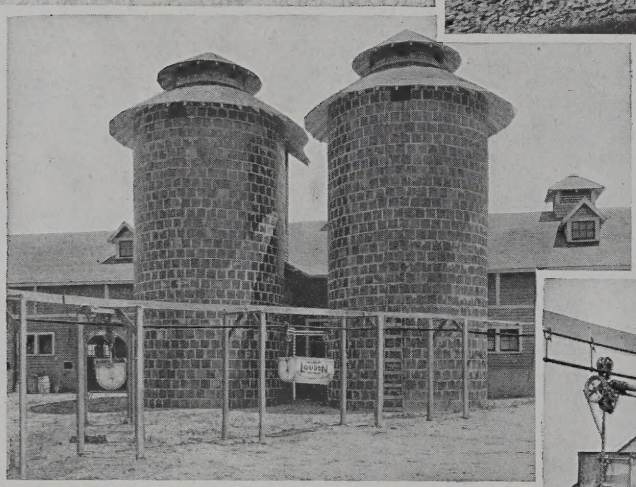
Louden Steel Track is heavy, strong and durable. Loads glide over it easily.

Morse Farms,
Libertyville, Ill.



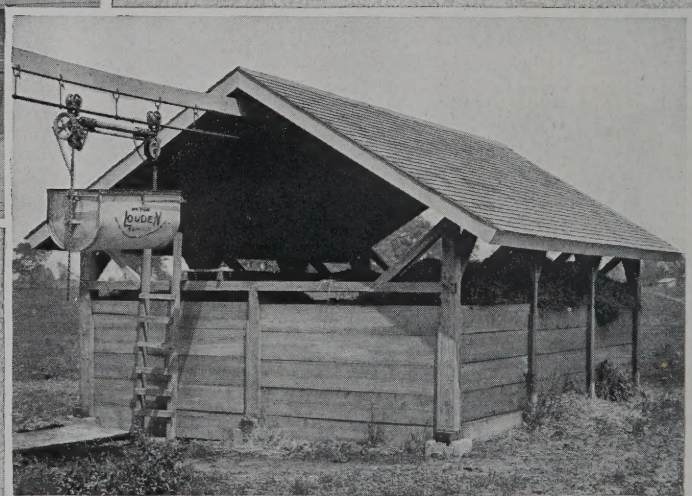
Running the Louden Track over a fence and dumping load into a spreader.

R. V. Lindabury,
Newark, N. J.



By means of a switch the Louden Track branches and goes into two different doors.

Allendale Farms,
Shelbyville, Ky.



From barn to manure shed over the Louden Track.
Kentucky Experiment Station
Lexington, Ky.

Louden Steel Track and Fittings

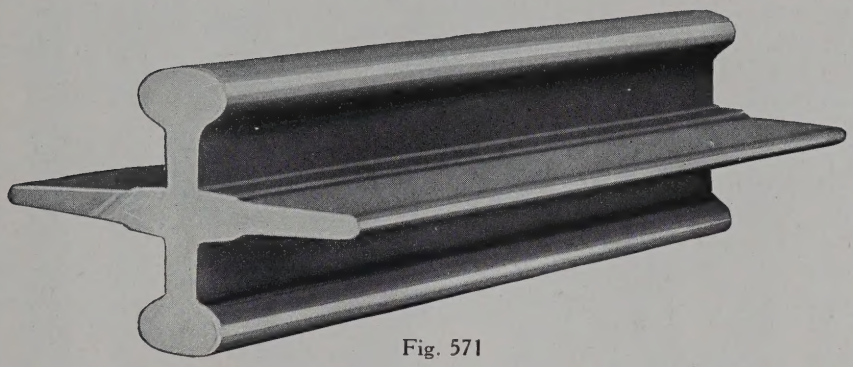


Fig. 571

Louden track is made of the finest and strongest high carbon steel and is especially adapted for carrying heavy loads. The shape of Louden track eliminates all unnecessary friction, and with it much less power is necessary to operate a carrier than with the ordinary, cheaply constructed track. Thin, flat sided track will buckle over or become wavy, carrying half the load that Louden track will carry with ease. Strongest litter carrier track made.

Figure 571 is an illustration of the Louden Double Bead steel track. This track weighs 2 pounds to the foot. Width of track, 2 inches; height, 1 7/16 inches. Furnished in even lengths from 6 to 16 feet.

Fig. 1397. Rafter Bracket made of very best quality Certified Malleable Iron. Weight, per doz., 4½ pounds.

Fig. 424. Heavy Pressed Steel Rafter Bracket. Durable and strong. Weight per dozen, 3¾ pounds.

Above brackets are for use where track is supported from joists or beams running at right angles to the track.

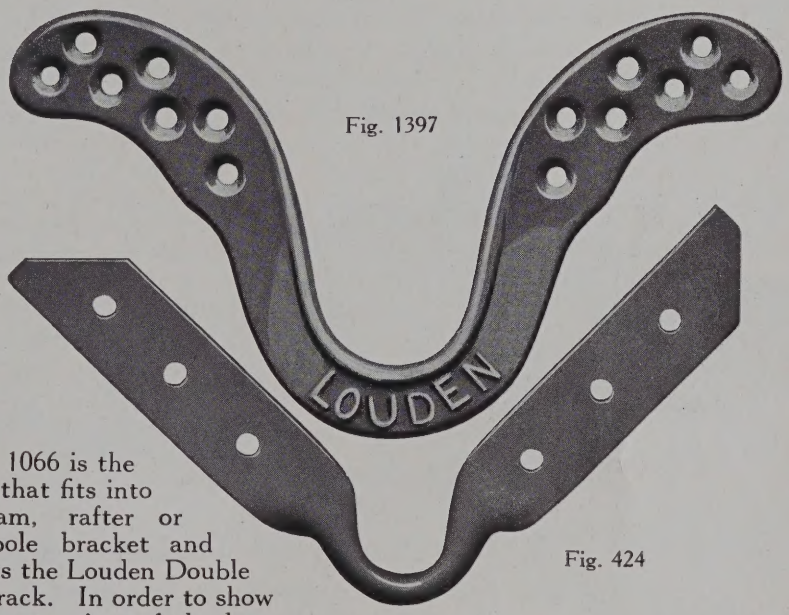


Fig. 1397

Fig. 424

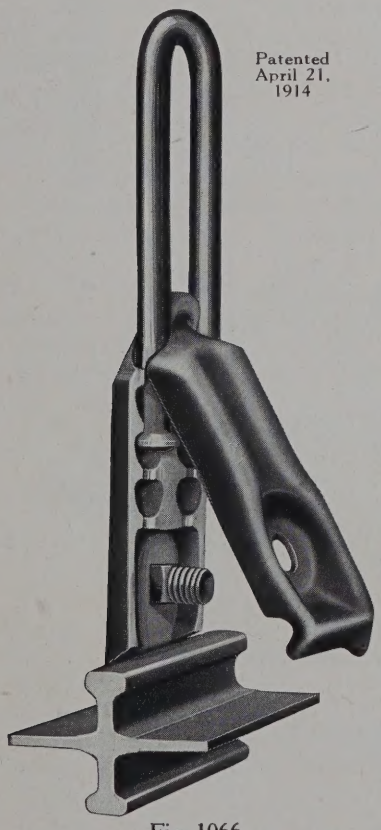


Fig. 1066

Fig. 1066 is the hanger that fits into the beam, rafter or ridge pole bracket and supports the Louden Double Bead Track. In order to show the construction of the hanger one of the sides that clamps onto the track is opened out. The hanger can be furnished in 5 inch, 7 inch, 9 inch, in fact, all odd inch lengths up to 61 inches. To make the erection of the track easy and at the same time accurate, the hanger has three distinct adjustments of ½ inch each or a total adjustment of 1½ inches. Thus, even though the beams or joists might be uneven or on different levels, the correct level of the track can be maintained without the least trouble or additional work.

All hangers go out adjusted down to their shortest length. As an example, a 5-inch hanger means that the distance from the flanges of the track, on which the carrier wheels run, to the under side of the loop at the top of the link is 5 inches and by adjusting it out, the distance can be made 5½, 6 or 6½ inches as desired.

Hanger Castings are Certified Malleable Iron; Supporting link is drawn steel. Weight of 5-inch length per dozen, 8½ pounds. To permit steel track carriers to pass under girders or beams, the hanger should always be 3 inches longer than thickness of timber under which the track is to pass. Hence, for an 8-inch timber an 11-inch hanger would be necessary.

Louden Steel Track Fittings — Continued

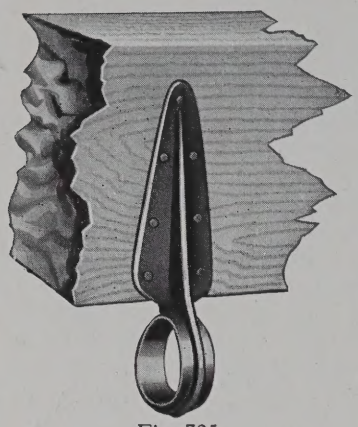


Fig. 725

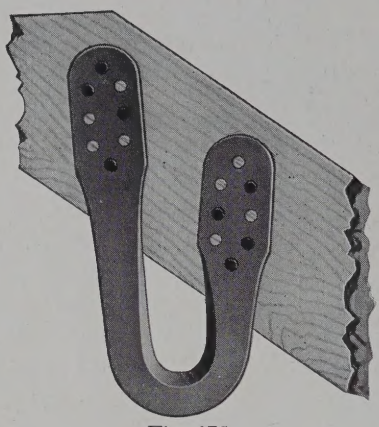


Fig. 675

Fig. 1308

Fig. 465

Fig. 725 is our Side Beam Bracket for hanging track to a timber parallel with track. Wt. per doz., 6 lbs.

Figure 675 is our Side Rafter Bracket, used where track is supported from sloping rafter running at right angles to the track. Weight per dozen, 5¼ pounds.

Figure 465 is our Ridge Pole Bracket, used when track is hung parallel to a joist or other 2-inch timber. Weight per dozen, 3 pounds.

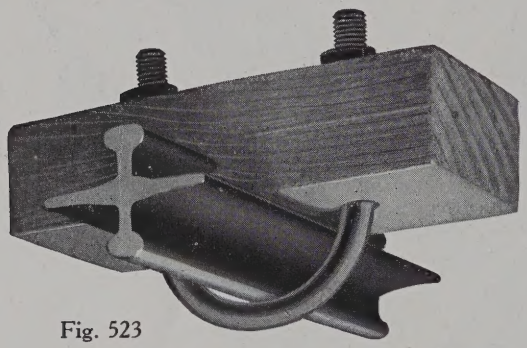


Fig. 523

Figure 1308 is our Pressed Steel Ridge Pole Bracket for 4-inch timbers. Especially designed for the heavier timbers such as are used at gable end of barn. Also made for 6-inch timbers. Weight per dozen, 6 pounds.

Figure 523 is an End Stop Block to clamp on the end of track to prevent carrier from running off the open rail. Weight, ¾ pound.

Figure 726 is a Screw Eye used for supporting track under ceilings, or this Screw Eye may be substituted anywhere for the brackets if preferred. Weight per dozen, 6 pounds.

Fig. 726

Splice Clamp for Double Bead Steel — Fig. 550

Fig. 550 is the Splice Clamp for Louden Double Bead Steel Track. It is of certified malleable iron and is held firmly in place on the under side of the track by six bolts. It is easily attached, holds the flanges of the track level and makes it just as strong at the joint as at any other point. Care should be used to see

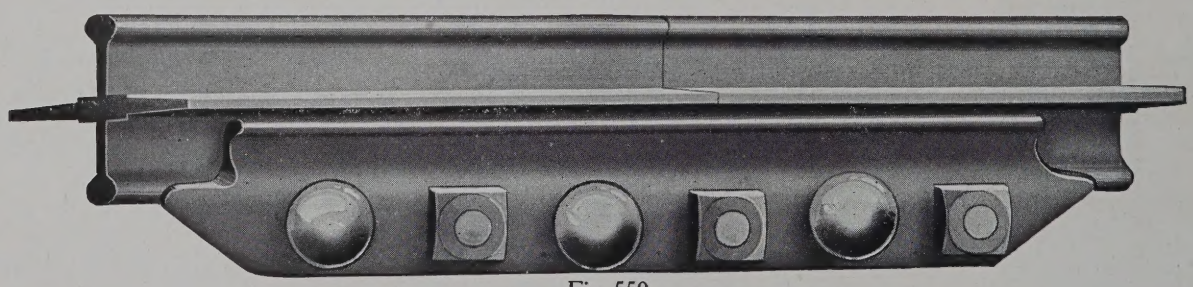


Fig. 550

that the nuts on the six bolts are drawn tight. After the nuts have apparently been made tight, the bolts should be set by striking them a heavy blow on the head with a hammer. After this is done it will be found the nuts can be drawn still tighter, and the clamps will hold securely.

Enough clamps for the track are furnished with every shipment. Weight, each 1¼ pounds.

Louden Track Switches

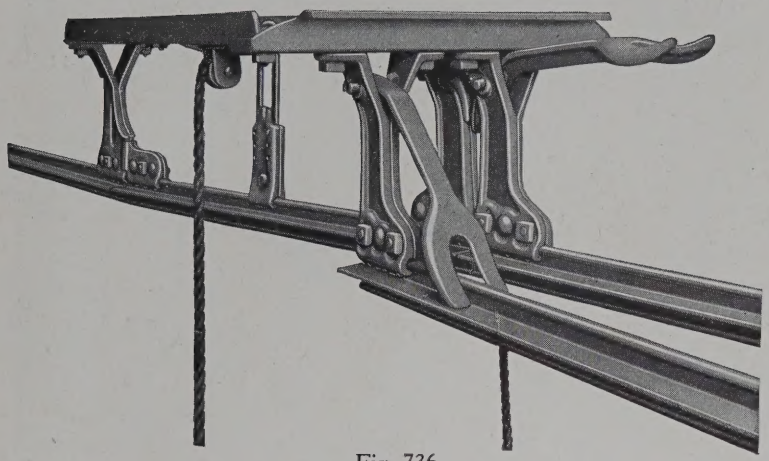


Fig. 736
Pat'd Nov. 17, 1903, June 23, 1908.

Specifications

Length of Steel Mounting, 31½ inches. Width, 13 inches.
Distance from top of Steel Mounting to bottom of track, 8¾ inches.
Switch section, 2 feet long. Switch section supported in center.
Weight, 25 pounds.

Louden Track Switches are the easiest operated, the strongest, and altogether the most satisfactory on the market. When the switch cord is pulled the track is thrown into the desired position, and an automatic safety guard makes it impossible for a car to run off the track. It is made reversible or right and left, so that branch tracks can be used on either side of the main track. As many as six branch tracks can be used with a single main track. The switches are easily installed in almost any position.

Fig. 736 shows our Two-Way Switch, and Fig. 795 our Three-Way Switch, each being steel mounted. Referring to the latter figure the switch "S" is hinged to the main track "A" at "H." By pulling on the cords "C" and "D" the switch or hinged section will slide on the plate on opposite side of "E" and change from one track to the other, so that the operator can use any one of the branch tracks at will. The hinged track "S" is locked in place by a latch. It can be operated from below no matter how high the track may be hung. The guard "G" which works automatically will prevent the carrier from running off the track, should the switch be left open. Switches can be furnished unmounted on special orders, but mounted switches are recommended as they are much easier to install.

Switches should never be placed in doorways, especially when sliding doors are used. This can usually be avoided by reversing the curve, placing the switch inside the building and making a back switch from the side line to the main line.

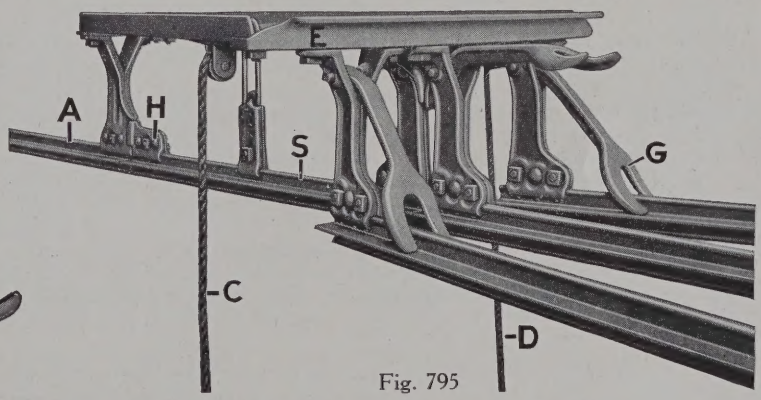


Fig. 795

Specifications

Length of Steel Mounting, 31½ inches. Width, 17½ inches.
Distance from top of Steel Mounting to bottom of track 8¾ inches.
Switch section, 2 feet long. Switch section supported in center.
Weight, 29 pounds.

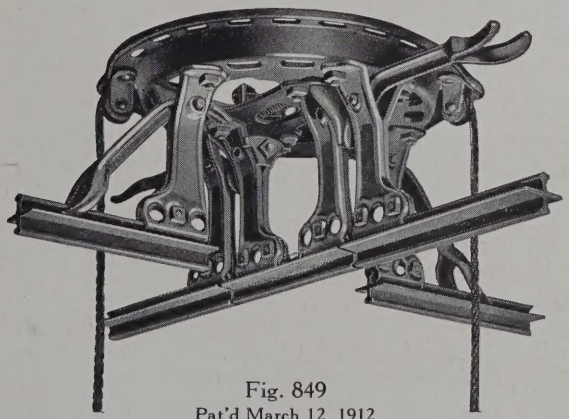


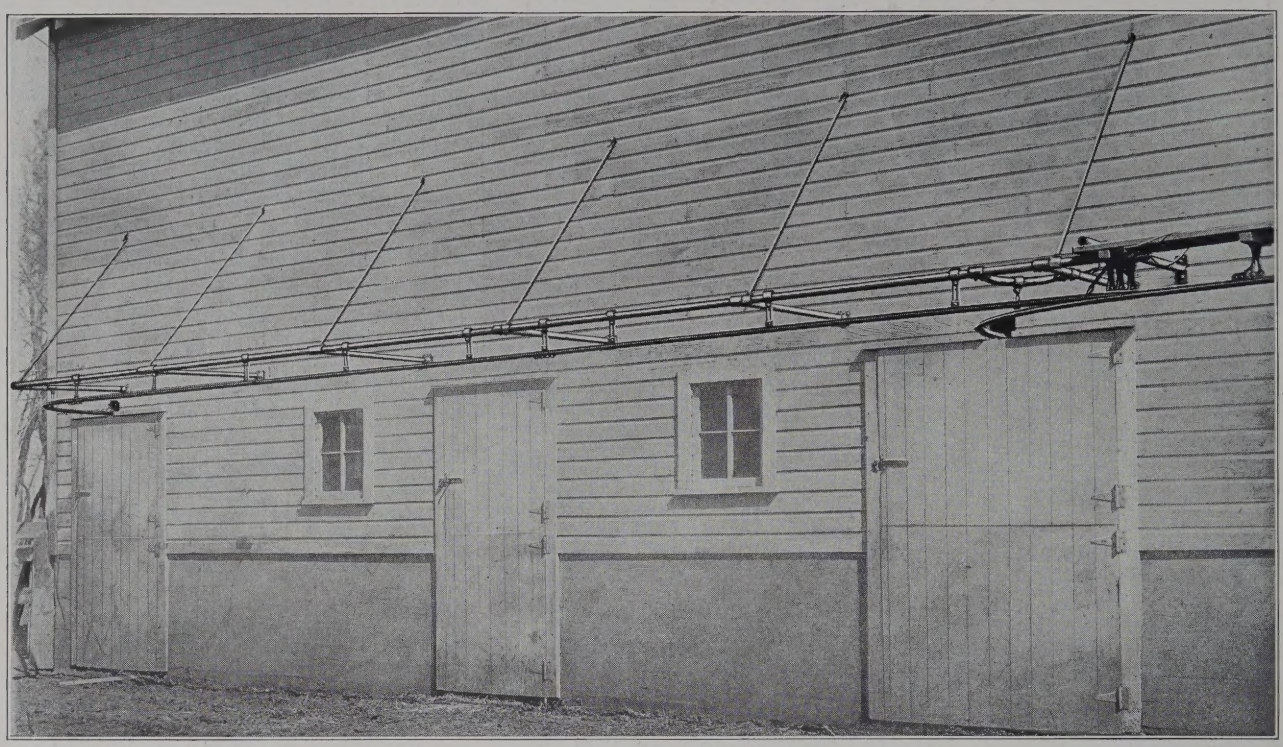
Fig. 849
Pat'd March 12, 1912

Specifications

Diameter of Mounting Frame, 14½ inches.
Switch Section, 8 inches long.
Distance, top frame to bottom of track, 8¾ inches.
Weight, 25 pounds.

Fig. 849 shows our Cross Track Switch mounted on steel ready to attach to ceiling. It is often necessary or convenient to have two tracks cross at right angles. The central section of the cross track switch is thrown into position for either track as desired by pulling on the cords. Guards work automatically, dropping in place or elevating to clear carrier wheels when central track is in place.

With our complete system of switches, track can be run in absolutely any direction desired.



Outside Track Supports — Fig. 1277

Specifications

Main Rail: 1⅝" high carbon steel tubing extending the entire length of the support parallel with building.

Diagonal Brackets: Steel diagonal brackets extending down from building, placed about every 6 feet for supporting main rail. Bracket is 6 ft. long, bent and is ¼"x1" steel. A Certified Malleable Iron connection is furnished for fastening each bracket to main rail at its lower end; lag screw furnished for attaching upper end to building. Bracket is strong and solid.

Brace Running back to Building: The main rail is braced against the building at the lower end of each bracket by means of a 1⅝" tubular steel pipe 3 ft. 9 in. long. A Certified Malleable Iron flange and 4 lag screws are furnished for attaching heel of brace to wall. A Certified Malleable coupling is furnished for attaching brace to main rail at the outer end.

Corner Braces: The two outside corners of the entire support are further braced with a piece of 1⅝" O. D. tubing 2 ft. 6 in. long running diagonally across corner, connecting front and end main rails. Two Certified Malleable Connections firmly hold each of these braces in place.

For Supporting Track: A sufficient number of Certified Malleable Clamps for fastening track hangers to 1⅝" O. D. main rail is furnished as a part of the support. Can be connected to main rail quickly and easily.

Where the manure is hauled to the field as fast as made the arrangement as shown above is handy and eliminates posts in the yard. The track is bracketed to the end of the barn far enough out to permit the manure to be dropped into the spreader or wagon. We furnish all metal parts as shown in detailed view, Fig. 1277; however track and hangers for same are not figured as a part of the outside support. If desired, supporting brackets made out of wood like Fig. 1278 can be used instead of the steel bracket. A handy and practical arrangement.

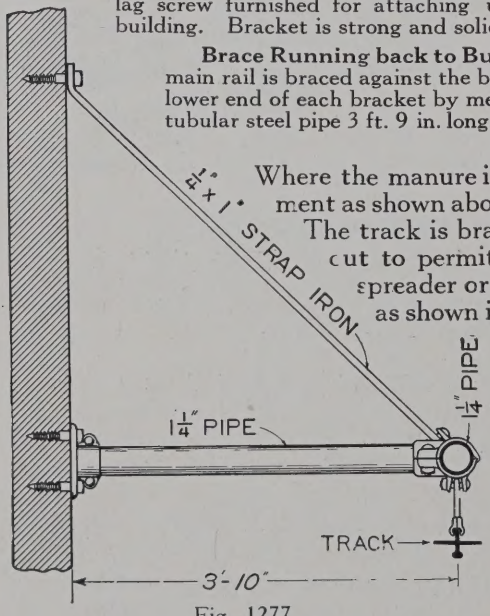


Fig. 1277

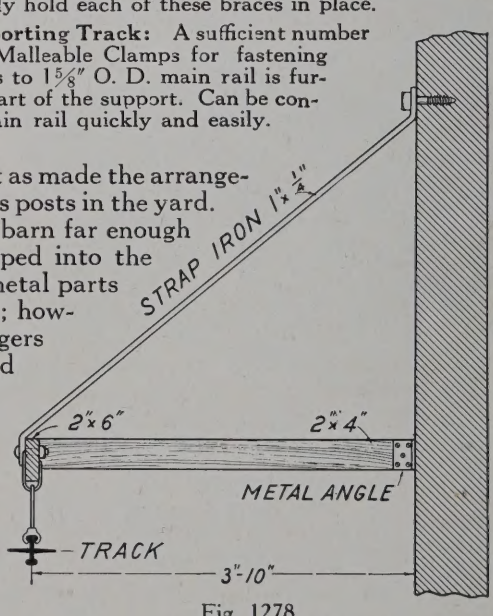
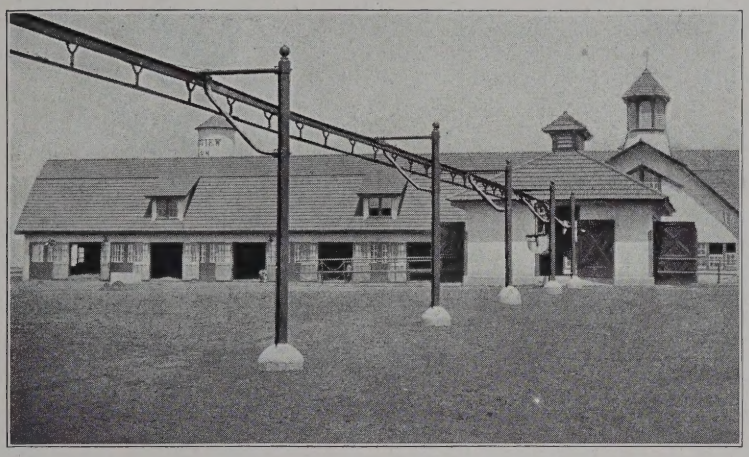


Fig. 1278

Steel Support for Yard Track — Fig. 1279



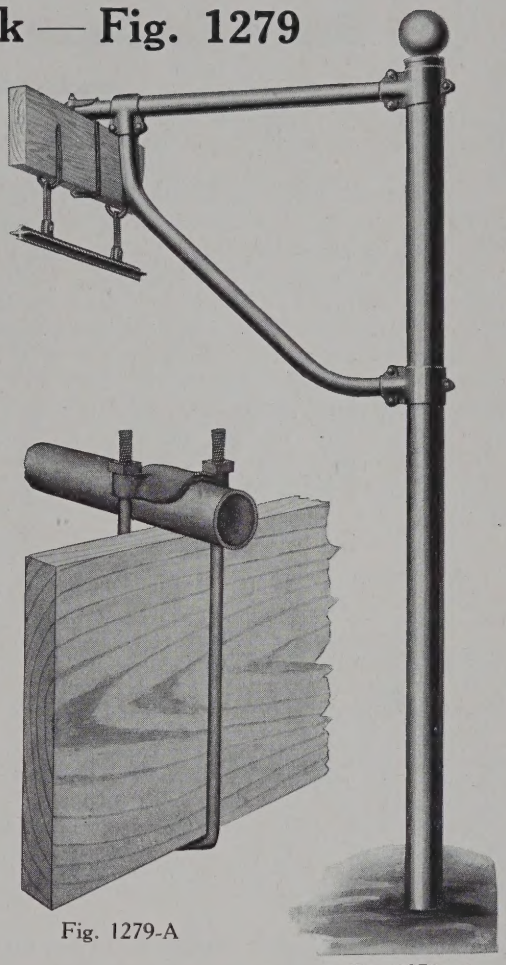


Fig. 1279-A

Fig. 1279

Specifications

Post is 4-inch O. D. steel tubing. Length, 14 feet. Posts should be set in concrete to insure a permanent installation.
Horizontal arm and brace are 1⅞-inch O. D. high carbon steel tubing.
Length of horizontal arm, 36 inches. Length of brace, 44 inches.
Couplings and beam supporting clamp are certified malleable iron.
The Fig. 1279 Steel Support for Yard Track complete consists of: 1 up right post; 1 horizontal arm; 1 brace; 2 "T" couplings 1⅞" by 4"; 1 "T" coupling 1⅞" by 1⅞"; 1 ornamental knob for 4-inch post; and 1 beam supporting clamp for use with 8-inch or 10-inch beam.
Weight, complete, 120 pounds. Finish, gray enamel.

Where the litter or milk can carrier track runs out into the yard, our Fig. 1279 Steel Support for Yard Track furnishes long-lasting support and, in addition, adds greatly to the neat and attractive appearance of the farmstead.

A steel supporting post is used, with steel horizontal arm and supporting brace. A 2" x 8" wood beam is hung beneath the supporting arm and the track is attached to it in the same manner as in the barn. Fig. 1279-A shows in detail the method of attaching the beam to the supporting arm.

The posts should be set in concrete to make them rigid and to keep them in perfect alignment. This makes a permanent support that will not be affected by "soft" weather.

Fig. 1295 shows two methods of supporting the track in the yard by means of wood posts, which should be set in concrete for rigidity and to defer rotting off. The concrete in which they are set should extend a few inches above the surface of the ground, sloping away from the base of the post so as to shed water quickly. But at best this type of yard track support is far from permanent.

For the single post wood support, a 6" x 6" post should be used. It should be braced by a guy rod because of the elasticity of the wood—another disadvantage of the wood post when used in place of the steel. With the double post wood track support sometimes used, also shown by Fig. 1295, posts are of 4" x 4" timbers.

The Steel Support, however, is preferable to the wood. It is rigid, better looking, does not rot and rack like wood and is more economical in the long run, considering necessary labor and material replacement costs of the wood support.

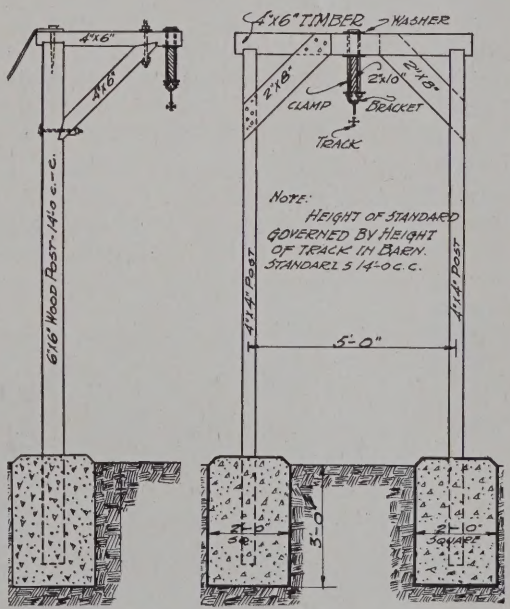


Fig. 1295—Two good methods of supporting track in yard by means of wood posts.

Brace for Long Track Hangers

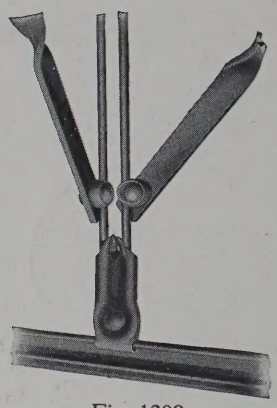


Fig. 1209

Specifications

Standard length of brace iron, 2 feet.
Brace is made of heavy 3/16" x 1" bar steel.
Clamp casting is Certified Malleable Iron.
Steel bar, clamp, and lag screw comprise brace.

Where extremely long link track hangers are used to permit track to be hung under beams or in suspending track from a very high ceiling, it is sometimes desirable to brace the track at the ends to prevent the track from swinging endwise and from creeping. Fig. 1209 shows two views of the Clamp and Brace attached to a link track hanger. The brace is adjustable up and down and can be placed in any position, one end being clamped to the hanger and the other end attached to any convenient timber or wall where it can be secured with a lag screw or bolt. This brace is also used to prevent sidewise swinging of the track. Adjustable 1 bolt clamp, steel bar and 1 lag screw comprise the brace.

Track Opener for Sliding Doors — Fig. 859

Specifications

Operation: For use on Sliding Doors only. Track opener automatically lifts short connecting link of carrier track when door slides shut. When door is opened connecting link of track automatically drops down into place again making complete section of track through doorway for carrier to run over.

Opener Includes: Connecting link of track; Certified Malleable Iron clamps for each end of it; two special rigid steel track hangers; two special steel bar straps for supporting overhead timber above door opening and one operating bar, 46¾ inches long, which attaches to sliding door for raising and lowering track. Weight, 13½ pounds.

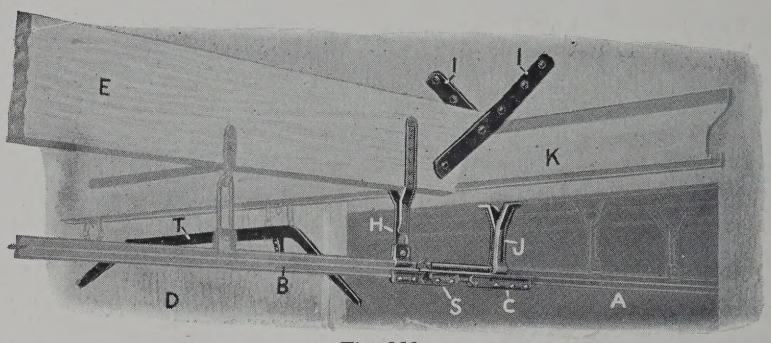
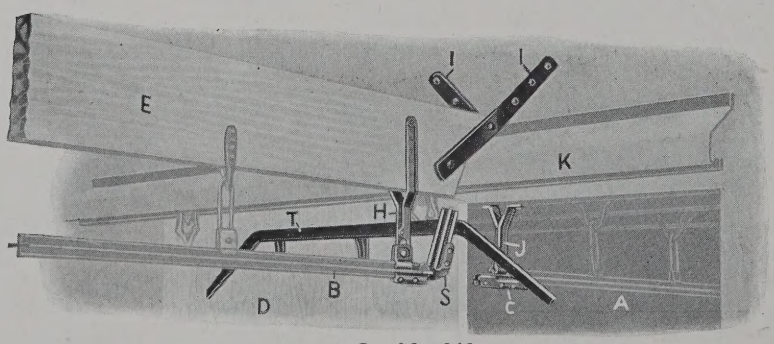


Fig. 859
Patented Nov. 13, 1909

The Louden Track Opener is for use on sliding doors through which Litter and Feed Carriers pass. This device automatically opens a way through the track so that the sliding door may be opened or closed without a moment's delay. (See cut No. 860.) The operating bar that fastens on the outside of the door has its ends downwardly inclined, hence, as the door is closed it automatically slips under the connecting link of track, which is hinged, and lifts it up out of the way. When the door is opened the connecting link of track automatically drops down into place again, making the track continuous through the doorway—ready for the carrier to pass over it. (See Fig. 859.) The operating bar may be set at either edge of the door and will open and close the track from either side.

The special rigid hangers "H" and "J" which are furnished with the opener are required to hold the adjoining ends of the track "A" and "B" in position so the connecting link "S" will always drop into its place without missing, and so the operating bar "T" will always lift it instead of pushing it to one side. The special straps "I" are built to fit the side of the barn and the sides of the overhead supporting timber "E." These hold the timber clear of the door hanger and low enough to attach the hanger "H." When the door is hung on the inside of the barn, the connecting link "S" is hinged to the track "A" and the clamp "C" is secured to the track "B."



Cut No. 860

This is an extremely simple device, is easily fitted up and works perfectly. It is economical—is strong and durable. It saves many hours of time and makes possible the convenience of sliding doors even where the tracks run in and out of them.

Bent Section of Louden Steel Track

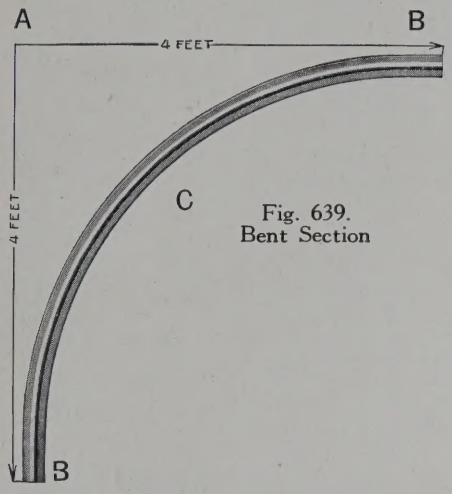


Fig. 639.
Bent Section

Fig. 639 is the standard bent section of track for use at all right angle corners of Louden track. The cut also shows how to accurately measure the track where such curves are necessary. This curve is bent on a 4-foot radius and contains 6 feet of track. It takes the place of 8 feet of straight track—4 feet back each way from the square corner (from A to B). Hence in measuring for the track—get the total distances to all square corners—then deduct 8 feet of track for each corner and substitute a curve and the total will be correct.

The regular 6-foot curve described above is generally long enough to take care of any requirement—however in extreme cases where a longer curve is necessary we can furnish the same, bent on a 5-foot radius. It contains 8 feet of track and takes the place of 10 feet of straight track, 5 feet back each way from the square corner. Irregular curves of any shape can also be furnished, however they must be bent after the order is received to fit the special needs of the particular installation.

Track Through Swinging Doors

Where the Litter or Feed Carrier track is to pass through a swinging door, a very neat as well as practical way to arrange the door is illustrated in Fig. 1208.

The top of the door is sawed off just below the track so that the door will open and close comfortably without striking the track. A piece filling the space between the door jamb and the top of the door is then placed on each side of the steel track, leaving a notch around the track just wide enough and high enough for the track wheels to clear as the carrier goes in and out of the building.

Another plan sometimes used is to place a hinged section on top of the door. When it is necessary to open the door this section is dropped down. When the door is closed the hinged section on top is hooked up in place fitting tightly and neatly around the track. Regardless of which plan of installation is followed for swinging doors, it is advisable especially in colder climates, to make provisions for as tight a fit as possible around the track for at best there will always be at least a slight opening. Where sliding doors are used however, even this slight opening can be entirely eliminated. Thus from the standpoint of a tight fit around the track the sliding door is preferable.

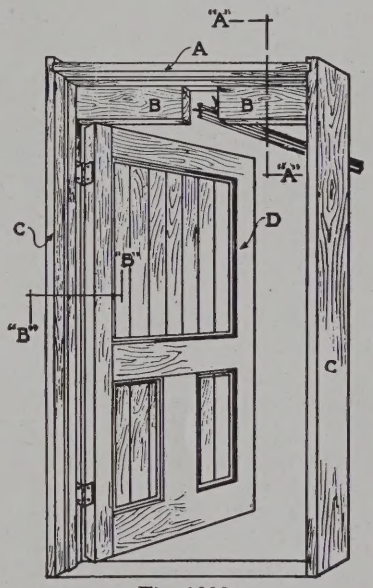


Fig. 1208.

Removable Section for Sliding Doors

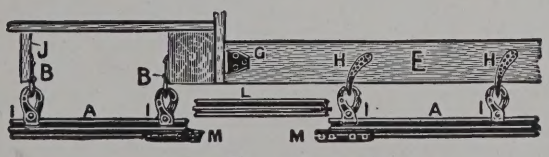


Fig. 633.
Louden Removable Section.

Where the track passes through a sliding door, a removable section "L," Fig. 633, may be used instead of the track opener described on opposite page. This is furnished with special splice clamps that bolt to the ends of the adjoining track sections "M, M." These clamps hold the loose piece firmly in place, but it can be easily lifted out to allow the door to shut, or be replaced when the carrier is to be used.

"J" is a joist; "B" the brackets; "I" the hangers; "A" the track; "E" the ridge pole; "H" ridge pole brackets, and "G" a wall bracket to fasten ridge pole to barn. Where the door opening is too low for the track to run out level from the joists and a swinging door is used, it may be arranged as shown in Fig. 643. Removable sections are made in two and four foot lengths. Specify size desired in ordering.

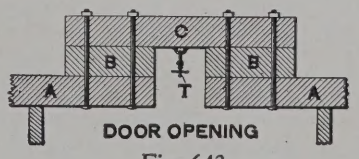
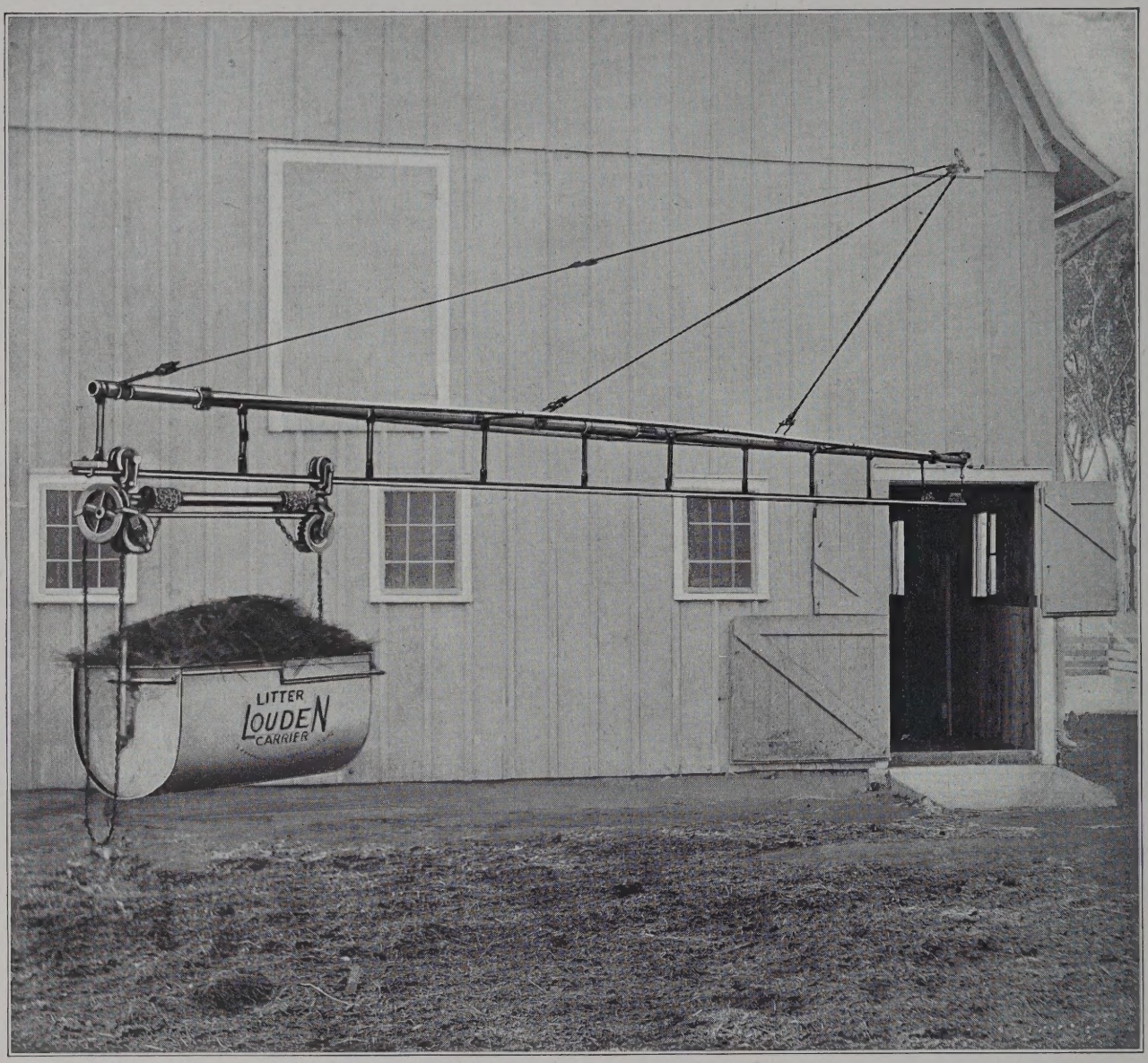


Fig. 643.



Louden Swinging Steel Crane

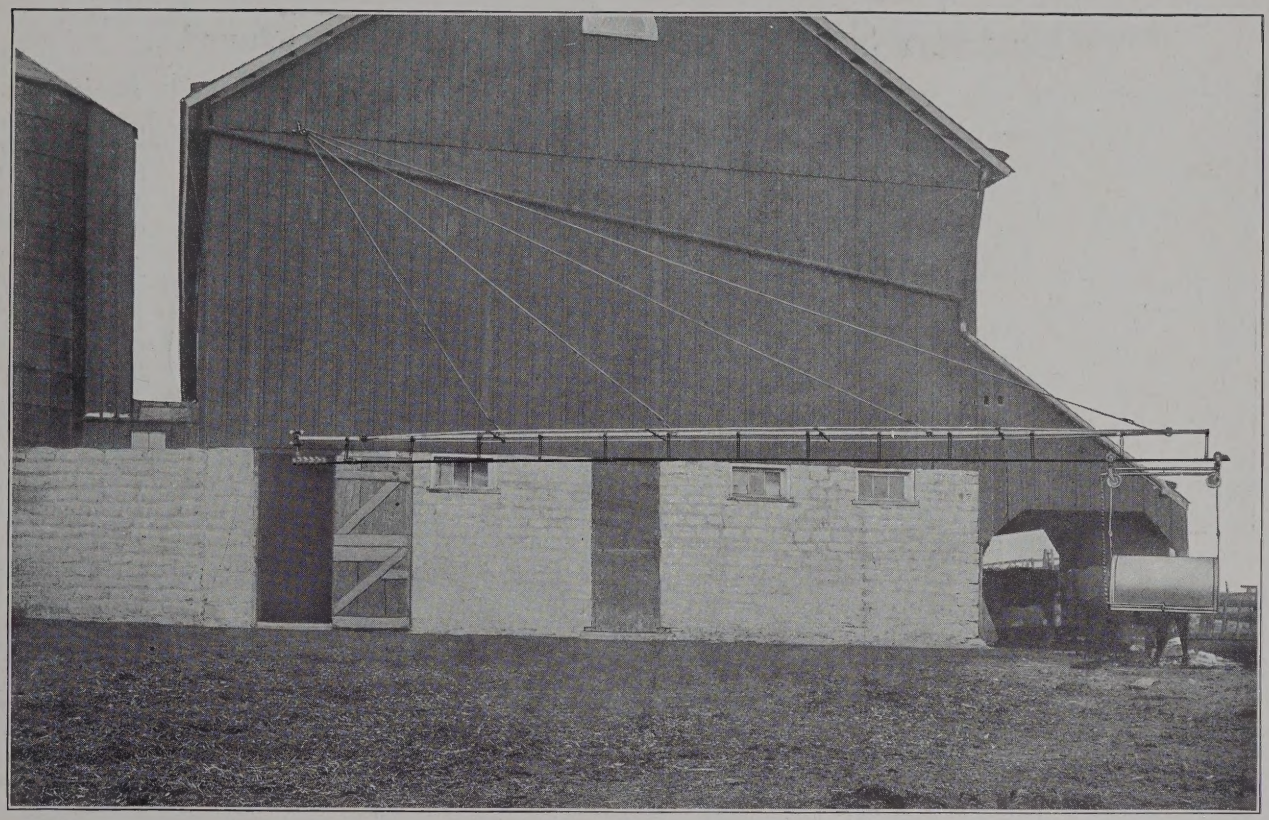
Specifications

Main Boom made of 2⅜-inch O. D. steel tubing.
Cranes 30 feet long or over are side trussed.
Cranes less than 30 feet long are not side trussed.
Truss Rods made of 1 1/16-inch O. D. steel tubing.
Truss Stays made of 1 1/16-inch O. D. steel tubing.
Guy Wires made of 0000 basic steel wire.
Vertebra hinge of certified malleable iron.
Crane Construction is strong and rigid.

Weight of 12-ft. Crane complete, Fig. 974 with track, 114 lbs.
" " 22 " " " " 976 " " 192 "
" " 30 " " " " 978 " " 348 "
" " 40 " " " " 980 " " 472 "

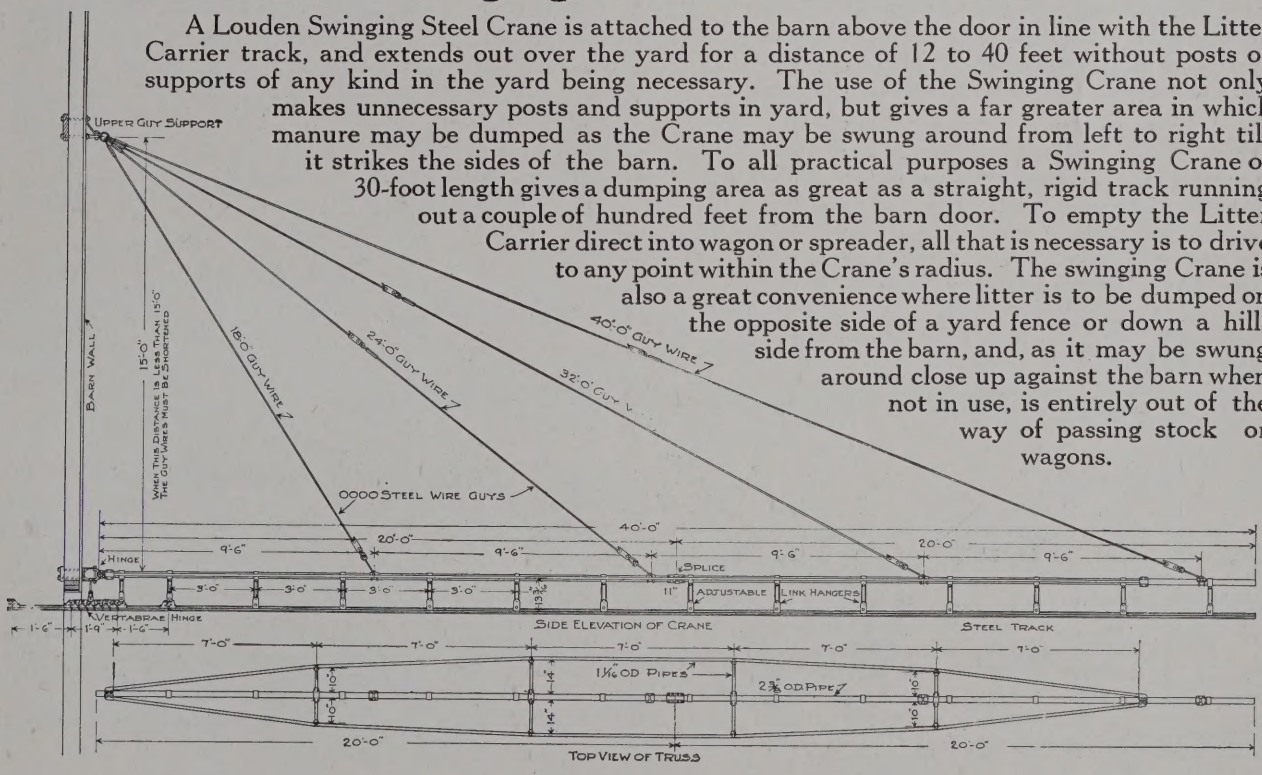
NOTE: A Crane of any length up to 40 feet is practical that does not exceed in number of feet the distance from the point where the base of the Crane is to set to the plate on which the rafters rest, multiplied by 2½. It is well to remember that there is the same *inward* pressure at the base of a Crane as *outward* pull where the guys are attached. This *pressure* and *pull*, however, comes at the barn's strongest points — the mow floor and the rafter plate, and a little bracing is all that is necessary to neutralize the strain on the end of the barn. For the proper erection of the crane and the type of bracing to use, see Figure 1067, page 220.

In erecting Crane see that the longest guy wire carries enough of the weight to pull it taut, intermediate guy wires may be slightly slack but the guy reaching to the end of the Crane should always be taut.



Louden Swinging Steel Crane — Continued

A Louden Swinging Steel Crane is attached to the barn above the door in line with the Litter Carrier track, and extends out over the yard for a distance of 12 to 40 feet without posts or supports of any kind in the yard being necessary. The use of the Swinging Crane not only makes unnecessary posts and supports in yard, but gives a far greater area in which manure may be dumped as the Crane may be swung around from left to right till it strikes the sides of the barn. To all practical purposes a Swinging Crane of 30-foot length gives a dumping area as great as a straight, rigid track running out a couple of hundred feet from the barn door. To empty the Litter Carrier direct into wagon or spreader, all that is necessary is to drive to any point within the Crane's radius. The swinging Crane is also a great convenience where litter is to be dumped on the opposite side of a yard fence or down a hillside from the barn, and, as it may be swung around close up against the barn when not in use, is entirely out of the way of passing stock or wagons.



Louden Swinging Steel Crane—Continued

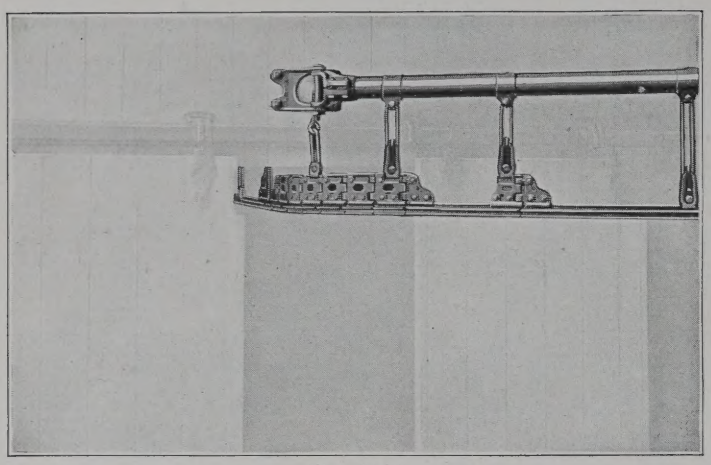


Fig. 1062

The Louden Crane is built regularly in lengths of 12 feet, 22 feet, 30 feet and 40 feet. Each Crane will carry many times any practical load. In factory test a 40-foot Crane was operated with a 1,500 pound weight at extreme end. It is absolutely guaranteed to handle 1,000 pound loads. For very heavy loads, however, care should be taken to see that the timbers of the barn, to which the Crane is anchored, are strong and well braced.

Crane Construction

The Louden Swinging Steel Crane is guaranteed to be the strongest and most substantial Crane for Litter and Feed Carriers on the market. All Louden Cranes 30 feet long or over are side trussed. This is the only Crane made that is side trussed with tubular steel (see Fig. 1067). It is built on the same scientific principle employed in steel bridges, and is 50 per cent stronger than a more cheaply constructed wire trussed Crane. It is absolutely impossible for it to buckle under the heaviest load, as the tubular steel truss will handle an enormous back pressure.

Cranes under 30 feet in length are not side trussed.

Figure 1062 shows the construction of the Crane at doorway. A special certified malleable iron vertebrae hinge made in our own factory insures the free, easy, and steady movement of the Crane. It will handle double the load that it will ever be called upon to handle, and it makes a smooth carrier track.

Where swinging crane passes through sliding door and this hinge is used, the door should be made double. Doors can then be notched to fit closely around the hinge as shown in Fig. 1062. The Type of hinge used is the best for the purpose.

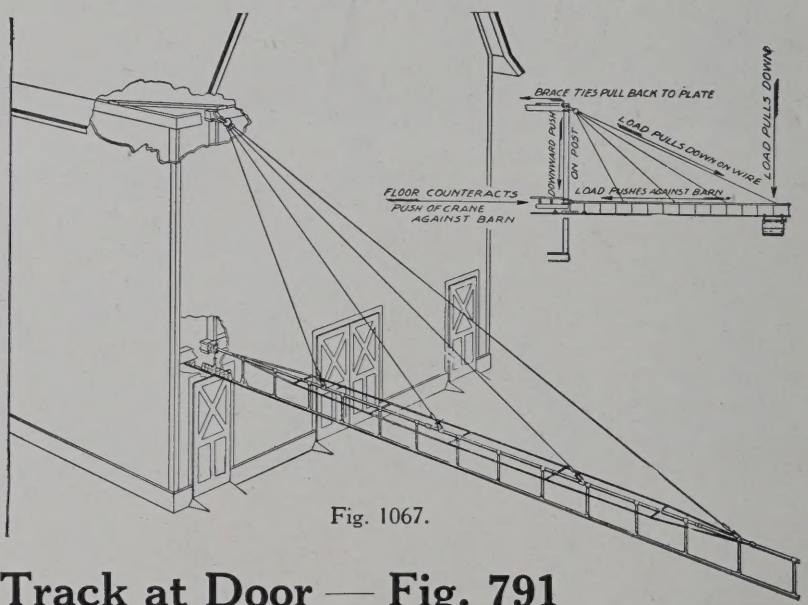

BRACE TIES PULL BACK TO PLATE
DOWNWARD PUSH ON POST
LOAD PULLS DOWN ON WIRE
LOAD PULLS DOWN
FLOOR COUNTERACTS PUSH OF CRANE AGAINST BARN
LOAD PUSHES AGAINST BARN

Fig. 1067.

Swinging Track at Door — Fig. 791

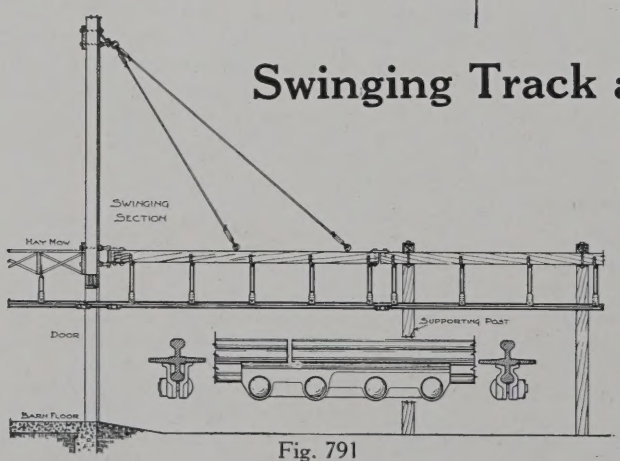


Fig. 791

Specifications

One set of fittings consists of certified malleable hinge and bolts for attaching to barn, steel supporting rods and special clamps and fixtures for connecting to track at outer end.

In instances where the litter carrier track extends out of the barn at the end where the hay is taken up, it is sometimes desirable to have a section of track which will swing around out of the way or lift out. This plan is shown in Fig. 791.

Please remember that we have a solution for every barn problem that may come up.

Fixtures for Louden Wire Track Litter Carriers

The Steel Wire Track

The track is made of the finest grade of Basic Steel Wire and is manufactured expressly for us. Its tensile strength is remarkable, and while it makes a good spring it will bend double twice without breaking. We furnish the standard size, No. 0000, which is amply strong for all work. This size is 13-32-inch in diameter and runs 27 inches to the pound. The track can be run 100 feet or more without center supports (see Figure 1068, next page).

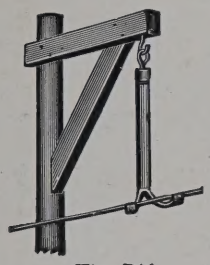


Fig. 746.
Patent Spring Suspender

Specifications
Length, 17½ inches.
Weight, 4¼ pounds.

When longer lengths are required additional supports may be used by means of our Patent Spring Suspender, as shown in Figure 746, which supports the wire and permits the carrier to run past the post. The body of the suspender is of inch pipe fitted with a strong spring 10 inches long which supports the track and at the same time makes it flexible to suit the weight of the load and to let the carrier run easily over it.

A similar suspender made shorter may be used in connection with the pulley, as shown by Figure 747, to raise and lower the track in the stable as may be desirable, and to assist the loaded carrier to run out and the empty carrier to return. The outer end of the track should be set 15 to 18 inches higher by the level than the end in the barn for each 100 feet long. The cut shows the tension bolt passed through the wall below the sill to facilitate the raising and lowering of the track. Otherwise it should be passed through the sill. Common pulleys and hooks may be used to hold up the suspender. When a tackle block hoist is specified, extra charge is made.

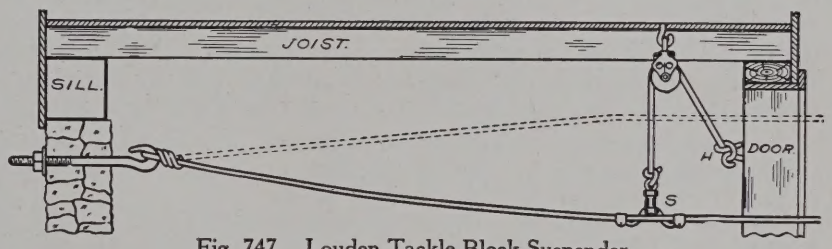


Fig. 747. Louden Tackle Block Suspender (Including Pulley)
Weight, 6½ pounds.

Sometimes it is necessary to run one end of the track to one side of a straight line. This is particularly the case many times at the doorway when it is desirable to run the track away from the building at an angle.

This we do by means of our Angle Iron, as shown in Figure 750. The curved end of the iron has a groove in which the wire fits and the other end is held by a guy secured to a post or otherwise, so as to hold the track in proper position. The guy should be of sufficient length to freely raise and lower with the give in the track as the loaded carrier goes over it. The carrier wheels will readily pass over the curved end of the iron. The Angle Iron is strongly designed and is made out of heavy Certified Malleable Iron. All angle irons are made with a 35 degree curve.

Wire Track to Two Barns

Roy L. Moyer of Maroa, Illinois, who has been using a Louden Litter Carrier, says:

"The Louden Litter Carrier outfit that I purchased of you is all that you claim for it. This outfit has been in use now about two years and carries litter without any bother. Before installing this outfit the boys were a little careless about keeping the barn cleaned out, but now with the Carrier, we have a clean barn all the time."

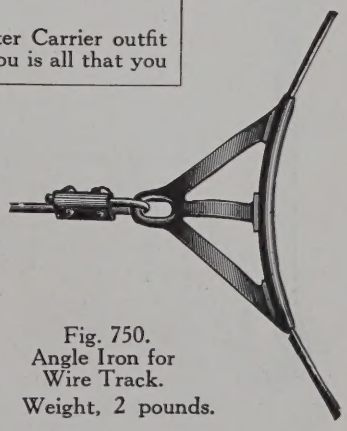


Fig. 750.
Angle Iron for Wire Track.
Weight, 2 pounds.

Anchoring Louden Wire Track

The anchoring of the track is an important matter. If it is securely anchored it is surprising what loads it will carry, but if not securely anchored, it will sag and get out of shape and cannot do good work. The post must be securely set in the ground. The other end of the track will most probably be anchored to the sill of the barn and the post should be made as solid as the sill.

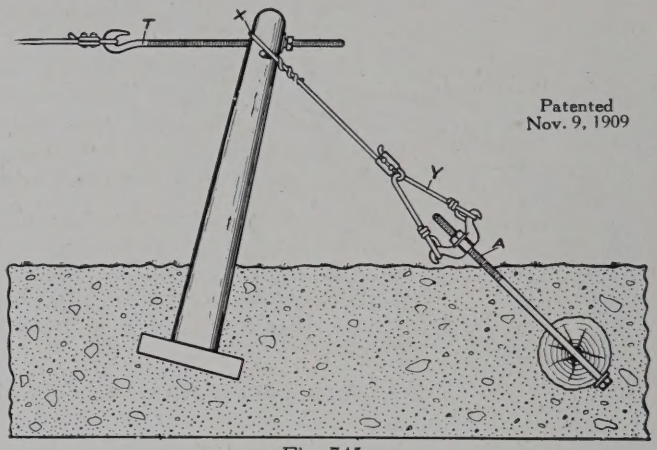


Fig. 745.
Wire Track Anchor

A large flat stone or a good broad plank should be placed below the end of the post (see Figure 745). Unless the ground is as solid as a rock it will not stand the pressure of the post and it will settle, and keep settling every time the track is tightened. The next thing is to place a log or timber 8 to 10 inches, or more, in diameter and 5 to 6 feet long, not less than 4 feet in the ground. Our anchor bolts "A" are ¾-inch in diameter by 6 feet long. They will stand a strain of at least 8 to 10 tons, and the log should be solid enough to stand that also. With such a substantial anchorage good service is always assured.

Our anchoring device has no equal. It reaches clear to the top of the post, a heavy cross pin being used to prevent the loop "X" from slipping down on the tension bolt "T." The anchor bolt, which goes through the log, has a long threaded end above the ground (not below where it is of no use) and is arranged with a yoke "Y," so the anchor can be tightened as may be necessary to hold the post in proper position. We can use both the tension bolt and the anchor bolt to tighten up the track, whereas others can use the tension only. Extra heavy wire is used in our anchor to insure ample strength.

Another important precaution is to set the post slanting as shown in Figure 745. If set straight it will be much harder on the anchor wire than on the track wire. It is the anchor wire which generally gives way. If there is room, the longer the guy wires are the better. Also be sure the anchor wire is in direct line with the track wire.

When you buy an article bearing the name Louden you may be sure that it is the best, and when a method of installation is recommended you may be sure that our recommendations are based upon actual tests. That is why Louden goods are known in every civilized country of the world.

Fig. 1207

Louden Tension Bolt Fig. 1207

Louden Tension Bolts are made of the very best quality of bolt steel. The bolts have deep threads and will not strip. Each Tension Bolt is furnished with large hexagon nut and strong, substantial washer.

The bolt is regularly furnished in one size—¾ inches in diameter and 30 inches long. Hence, bolt is long enough and heavy enough to amply take care of every requirement. In addition, the increased number of threads offer plenty of adjustment to keep the wire taut.

Fig. 1068.

Louden Wire Track Switches

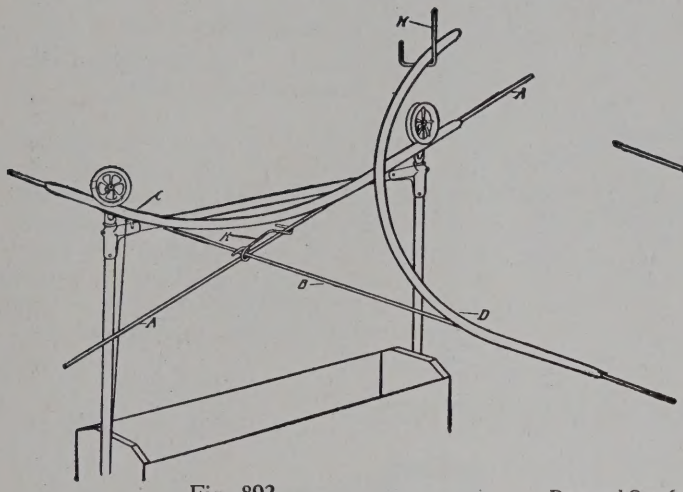


Fig. 892

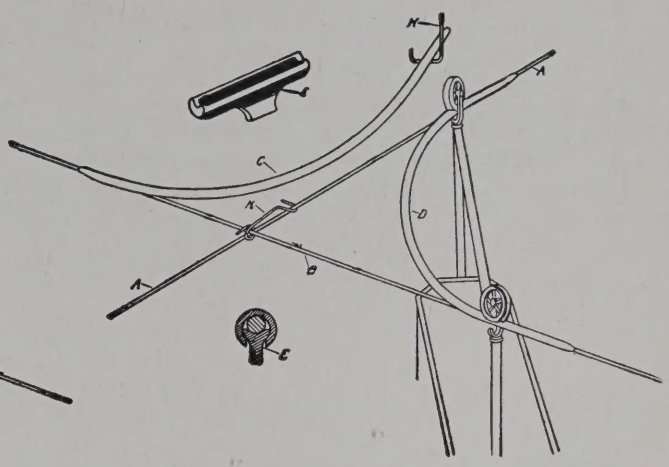


Fig. 893

Patented Oct. 6, 1908

Specifications

Length, 72 inches.
Weight, 5¾ pounds.

We have the most perfect switches ever devised for a wire track. They are made of pipe ("C" and "D") slotted on the lower side to fit over the wires and are held securely in place by specially fitted keys "E," which are readily driven in or out without kinking, or otherwise injuring the wire. The switches can be easily and quickly placed or removed and will run in both directions so as to form a Three-Way switch.

Figure 892 shows the switches set for carrier to pass from the main line "A" to the left hand line "B."

Figure 893 shows switches set for carrier to pass onto the right hand side line "B". To change the carrier to the opposite side, the wheels must be lifted from the track and swiveled around so the castings supporting the wheels will be on the same side of the main wire as the switch that is being used. This is easily and quickly done by lifting the entire carriage, one end at a time, and setting the wheel on the opposite side of the wire.

The switches are interchangeable and one switch instead of two may be used, changing the switch from side to side. Where it is desired to use the main line "A" and pass under the cross line "B," place the end of both switches in the hook "H" and remove the cross track holder. The sag of the main track "A" will easily let the carrier wheels pass under the cross track "B."

The Louden Cross Track Holder

When two tracks cross and switches are used something is needed to hold the tracks together. This we accomplish by means of cross track holder, Figure 749. It is hooked on the wire "B" so the point "P" will pass under the wire "A" and then over the wire "B" on the opposite side. It is held in place by pressing the hook "C" up over the wire "A."

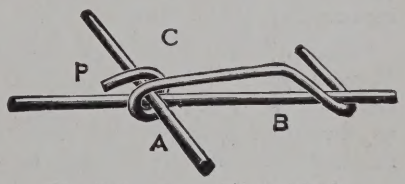


Fig. 749. Cross Track Holder

Specifications

Weight, ½ pound.

There is more strength and less friction in the Louden wire track switches than any others, and they are the easiest and quickest to change from one position to another.

The Louden Machinery Company, Fairfield, Iowa. Oconomowoc, Wis.

Dear Sirs:

Three years ago we had one of your carriers installed. Today I wouldn't have it taken out for five times what it cost. It is as good as new and has never cost us one cent for repairs. Can feed twenty-five head of cattle with one filling of carrier. We have had the stanchions, calf pen, bull pen and one box stall for two years and we are perfectly satisfied with them.

Yours truly,
Miller Bros.

Louden Wire Track Reverse Curve

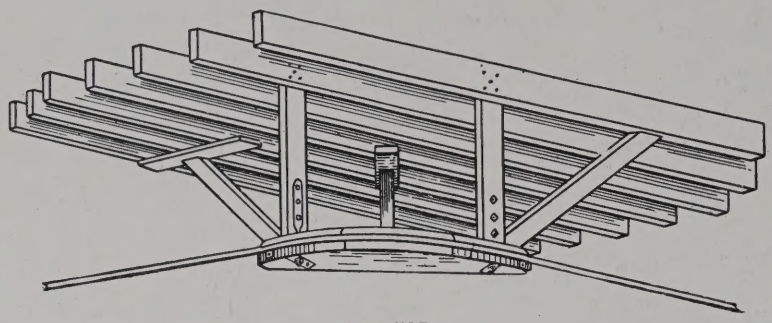


Fig. 797.

Specifications

Length, 41 inches. Weight, 20 pounds.
Patented Mar. 31, 1908

By the use of our reverse curves and switches the Wire Track Litter Carriers may be run around either inside or outside curves. Figure 797 shows our reverse curve as it appears when used inside of building, where it is attached to and supported by the joists or ceiling. Curve must be rigidly braced in all cases.

Sundry Wire Attachments

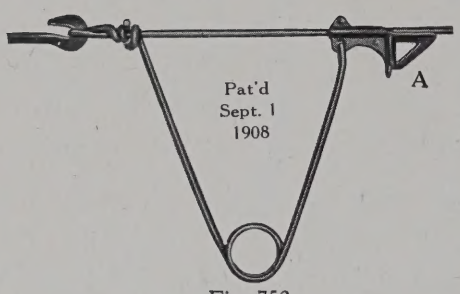


Fig. 753.

Fig. 755.

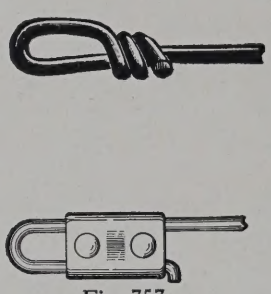


Fig. 757.

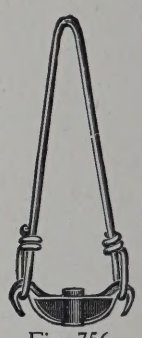


Fig. 756.

Specifications

Spring End Stop.
Distance from bottom of spring to track, 16 inches. Weight, 4 pounds.

Anchor Loop.
Length, 14 inches. Weight, 2 pounds.

Improved Clamp Loop.
Weight, ¾ pound.

Anchor Yoke.
Length, 20 inches. Weight, 4⅛ pounds.

Figure 753 is a detail view of our Patent Spring End Stop, the most complete device of the kind ever invented. It is composed of two malleable iron pieces bolted together so as to slide freely on the track, and connected to a special spring as shown. The wheel yokes of the carrier straddle the pointed ends of these pieces and cannot run off. The spring eases off the momentum of the carrier and gives it a strong start back on its return trip. The spring and the pieces "A" can be quickly and easily removed from or replaced upon the track.

Figure 755 is a detailed view of our Improved Anchor Loop which goes over the top of the post as in Figures 745 and 1068 (page 222). It is made of 0000 wire, the same as the track, and will stand any strain that can be put upon it. Figure 756 is our Patent Anchor Yoke with malleable casting for anchor bolt, as shown in Figures 1068 and 745. It will stand a tremendous strain. Anchor Loop, Figure 755 and Anchor Yoke, Figure 756 are included with the Complete Anchor, Figure 745, page 222.

Figure 757 shows different ways of looping the track and guy wires. The upper is the common way of twisting the wire around itself. The lower is our Improved Clamp Loop. The first is good enough for a moderate strain, or where the wire is double, as in our anchor loops or anchor yokes; but when there is only a single loop the Clamp is much stronger and better, as well as easier made and attached and detached. All that is necessary is to remove the bolts which hold the clamps, and it can be hooked into an eye, which cannot be done with a twisted loop.

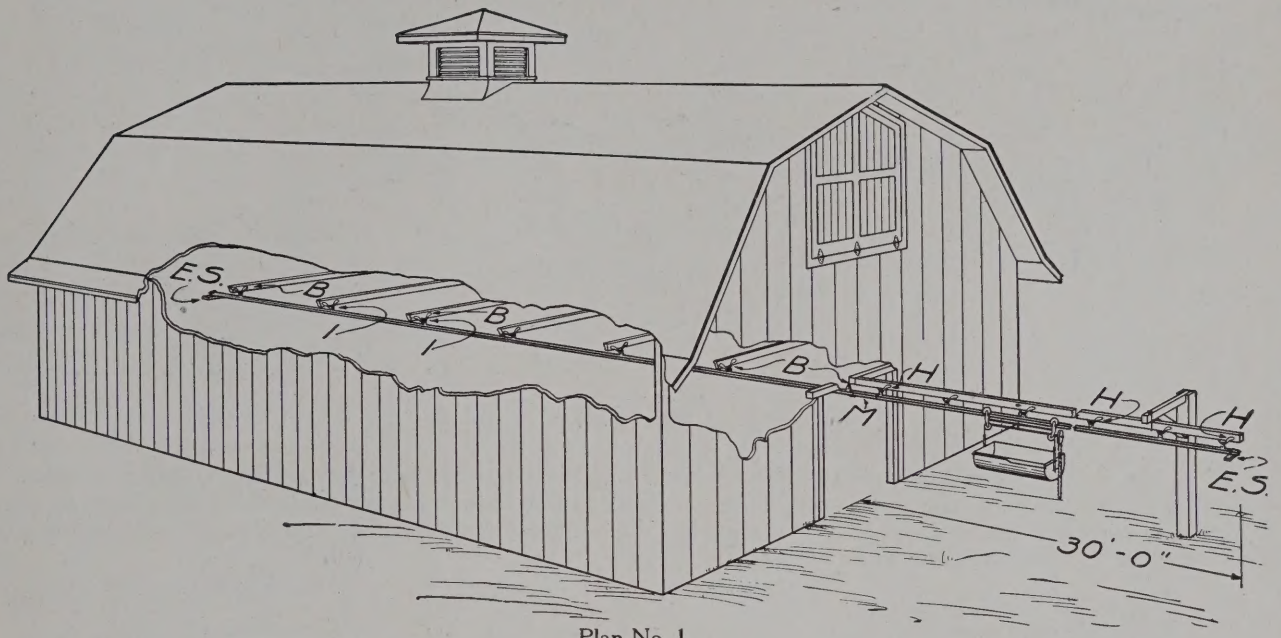
The Louden Machinery Company, Fairfield, Iowa. Kootenai, Idaho.
Gentlemen:

I have used your Stanchions and Manure Carriers since last fall and am well pleased with them. In fact, I don't know how I got along without them before. The manure I notice is far better this spring. The horse manure used to burn in the pile, and now I get it mixed with the cow manure and it improves them both.

Respectfully yours,
Matt Schmitt.

How to Figure the Material Needed

For A Litter Carrier Outfit



Plan No. 1.

We show here a few plans to illustrate some of the many possible ways in which Louden Carriers can be made to meet any plan, no matter what the seeming difficulties. The plans mean nothing so far as size and shape of buildings are concerned and the length and width are given only that you may understand how to figure the number of feet of track and the number of other fixtures required. These plans are somewhat common to those generally used in ordinary types of barns and other farm buildings. If you have a problem that's different, write us and we shall be glad to draw up a plan to suit your particular requirements. This is an every day occurrence with us and it will not obligate you in the least.

Steel Track Installation

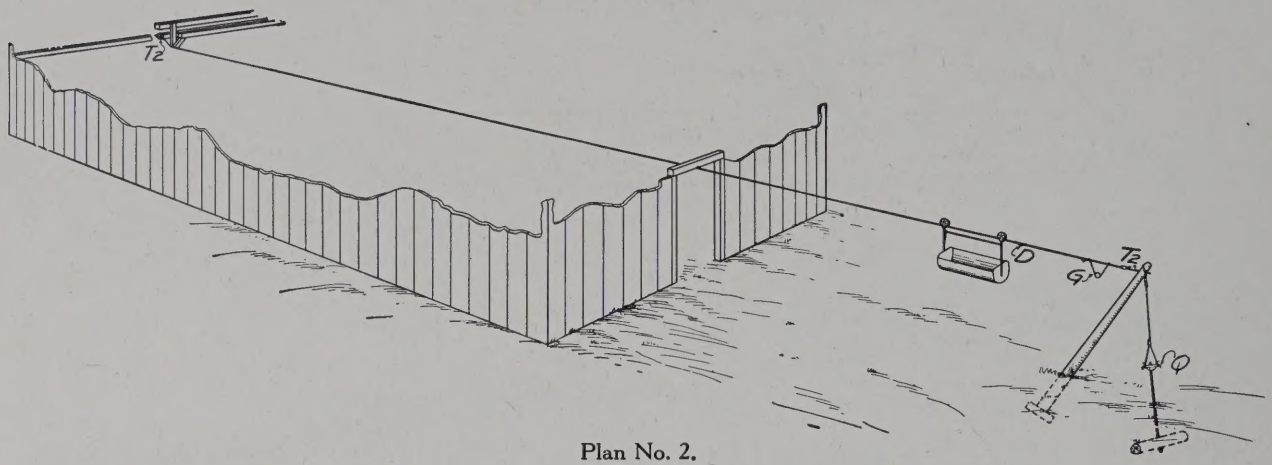
Plan No. 1 shows a straight run of solid steel track extending from the rear of the building 30 feet out in the yard. For this arrangement the following equipment, described and illustrated in this catalog, would be required:

	Figure	Page
70 ft. Double Bead Steel Track	571	211
24 Link Track Hangers	1066	211
14 Rafter Brackets "B"	424	211
10 Ridge Pole Brackets "M"	465	212
1 Automatic Track Opener	859	216
2 End Stop Blocks "ES"	523	212
1 Steel Track Litter Carrier	828	188

In all of the plans where the Automatic Track Opener, Figure 859, is specified, the Removable Section, Figure 633, page 217, may be substituted if desired. However the Track Opener is much more convenient and is well worth the slight additional cost.

Joists are usually 18 inches on center. We recommend a supporting hanger and bracket every other joist or every 3 feet for the Double Bead steel. If the joists are 24 inches on center it would be well to use a hanger on every joist, as four feet is rather too wide a space between hangers, especially if the work is to be heavy. The Louden Carriers and track carry big loads, hence it is always advisable to have the overhead track supports close enough to handle these big loads safely. An installation properly erected always means perfect satisfaction and long years of rugged service, it is by far the most economical installation to make.

Litter Carrier Outfits — Continued

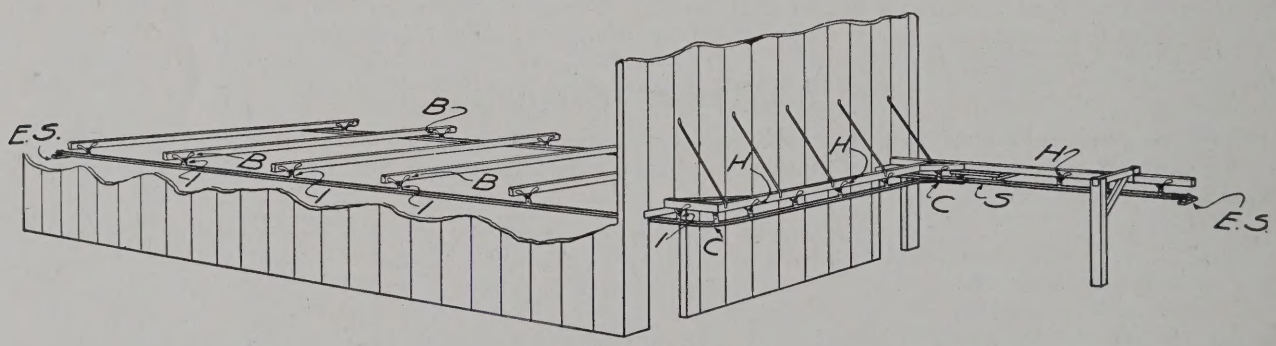


Plan No. 2.

Plan No. 2 shows the same plan as No. 1 but equipped with our wire track Litter Carrier System. This illustrates the use of the Self-Acting Carriers which can be loaded at any point along the track, given a push and they will run out and empty at the trip "D," strike the spring "G," and return to the building. For this plan the following would be required:

	Figure	Page
1 Self-Acting Litter Carrier	721	194
70 ft. 0000 Basic Steel Wire	Top of	221
2 Tension Bolts, ¾ x 30 "T"	1207	222
1 Wire Track Anchor "Q"	745	222
1 Patent End Stop "G"	753	224
2 Loop Clamps	757	224

One trip "D" is furnished free with each wire track Litter Carrier. Where two or more tracks are used or the carrier is to be unloaded at two different points extra trips "D" should be specified.

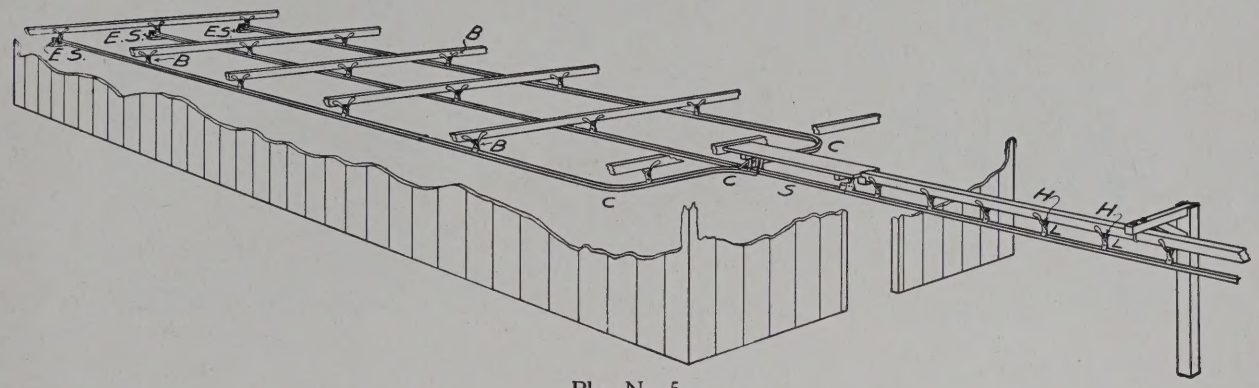


Plan No. 3.

Plan No. 3 shows a barn with a stable on each side and a solid steel track for litter carrier in each stable. One track runs in a straight line 40 feet out into the yard. The other track, after passing through the door, is curved and carried along the end of building, another curve is used before it is joined onto the straight track with a two-way switch. For this plan the following would be required:

	Figure	Page
132 ft. Double Bead Steel Track	571	211
2 Bent Sections "C" for Curves	639	217
66 Link Track Hangers (5-inch)	1066	211
42 Rafter Brackets "B"	424	211
24 Ridge Pole Brackets "H"	465	212
1 Two-Way Switch "S"	736	213
2 Automatic Track Openers	859	216
3 End Stop Blocks "ES"	523	212
1 Steel Track Litter Carrier	828	188

Litter Carrier Outfits — Continued

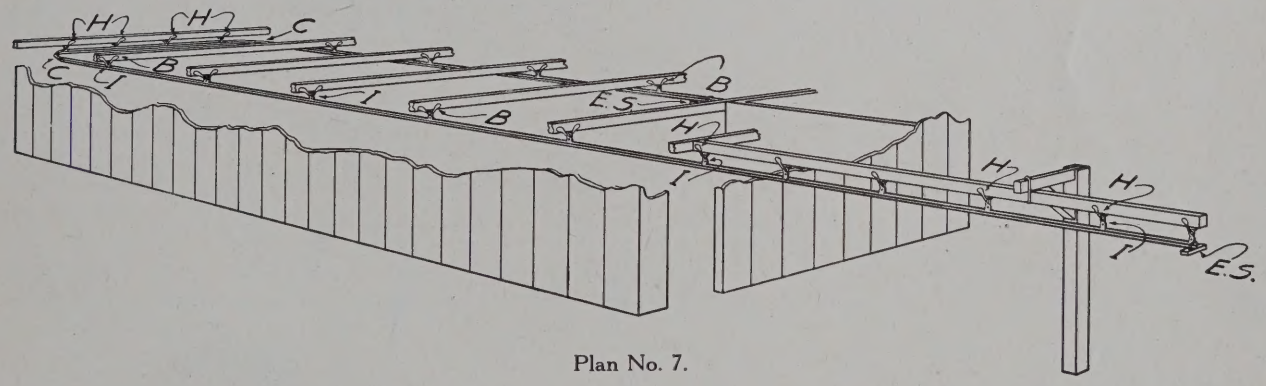


Plan No. 5.

Plan No. 5 shows a building with three tracks inside joined together by a three-way switch near the door and a single track continuing 40 feet out into the yard. The following items would be necessary:

	Figure	Page
160 ft. Double Bead Steel Track	571	211
2 Bent Sections "C" for Curves	639	217
80 Link Track Hangers	1066	211
56 Rafter Brackets "B"	424	211
24 Ridge Pole Brackets "H"	465	212
1 Three-Way Switch "S"	795	213
1 Automatic Track Opener	859	216
4 End Stop Blocks "ES"	523	212
1 Steel Track Litter Carrier	828	188

If the arrangement of the building does not permit placing the switch inside, the three tracks may be joined on the outside by supporting the two side lines along the end of the building as shown in plan No. 3, page 226. If desired, one of the side lines of track can be run straight out from the building and the tracks connected by the use of two Two-Way Switches instead of one Three-Way Switch.



Plan No. 7.

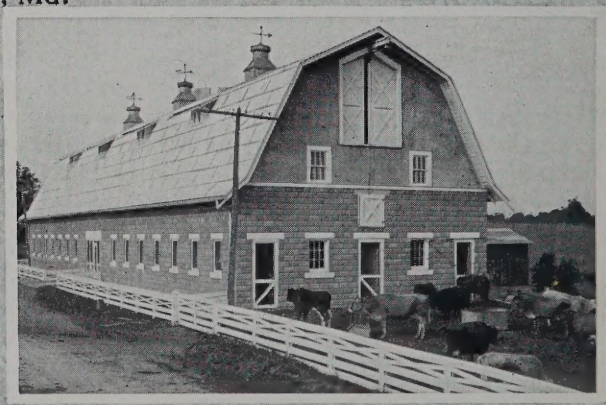
Plan No. 7 shows an arrangement for solid steel track in a building with a double row of stalls and all of the litter to pass out at one door. At the rear of the building the track is curved, crosses the end of the building and continues in a straight line out into the yard. No switches are necessary. For this plan you would need the following:

	Figure	Page
112 ft. Double Bead Steel Track	571	211
2 Bent Sections "C" for Curves	639	217
52 Link Track Hangers (5-inch)	1066	211
32 Rafter Brackets "B"	424	211
20 Ridge Pole Brackets "H"	465	212
1 Automatic Track Opener	859	216
2 End Stop Blocks "ES"	523	212
1 Steel Track Litter Carrier	828	188

A Louden planned barn fitted for Southern conditions.
J. D. Weeden & Co.,
Florence, Ala.

A Louden planned barn in keeping with the attractive surroundings.
S. S. Schuyler,
Easton, Md.

Louden planned and equipped.
Convenient and attractive.
R. L. Richardson,
Austin, Minn.



Louden planned—Economical in cost, efficient in operation.
Ingle Investment Co.,
Winslow, Ind.

How to Build An Entirely Satisfactory Barn

A barn must be carefully planned, to the last detail, before construction begins or nine times out of ten you will not be entirely satisfied with it after it is built.

Your barn is your work-shop—especially so in the case of the dairyman. Since you are investing good money in the building, you of course want it to suit you right down to the ground when it's built, thereby giving you all the satisfaction possible for the amount of money you put into it.

A few days or weeks—perhaps also a little money—spent beforehand in getting ready for a right start will, in practically every case, be repaid over and over again in money, time and labor saved after the barn is built and put to use. In this way you will insure yourself a barn that exactly meets your needs—convenient, labor-saving, properly lighted and ventilated, economically built and economical to use—a barn in which you will take a world of pride and pleasure. Haphazard plans and guess work in building a barn, or any other building on the farm, are not only wasteful and expensive but usually result in a building that is inconvenient and a source of constant dissatisfaction for as long as the building stands.

You may have certain ideas which you want to incorporate in your new barn. Perhaps you saw them in some other barn and liked them. Probably there were some inconvenient features in your old barn which you will want to overcome in the barn you build. And right here is where many a farmer has gotten into trouble by not first having everything planned out and drawn up to scale. A change here where you want it may necessitate a change there where you don't want it—which you might overlook unless you were figuring everything out and drawing the plans on paper. There are so many matters to consider in planning and building a good barn that the *only* thing to do is to *draw your plans on paper* before buying a a stick of lumber or turning a shovel of dirt for the new building.

The Essential Features of a Well-Planned Barn

In planning the barn there are a number of essential features which should be held in mind.

The barn should be practical and convenient, so arranged that the chores or barn work can be done as quickly as possible, with minimum effort and therefore at least expense. Eliminate needless steps and work by properly locating the doors, stalls, pens, posts, passage-ways, feed bins, silos, hay chutes, manure pit, etc. Between well arranged and poorly arranged barns there can easily be a difference of tens of thousands of steps and hundreds of hours of labor *each year* in getting the same amount of barn work done. Save this difference in the cost of operation by arranging your barn properly and conveniently.

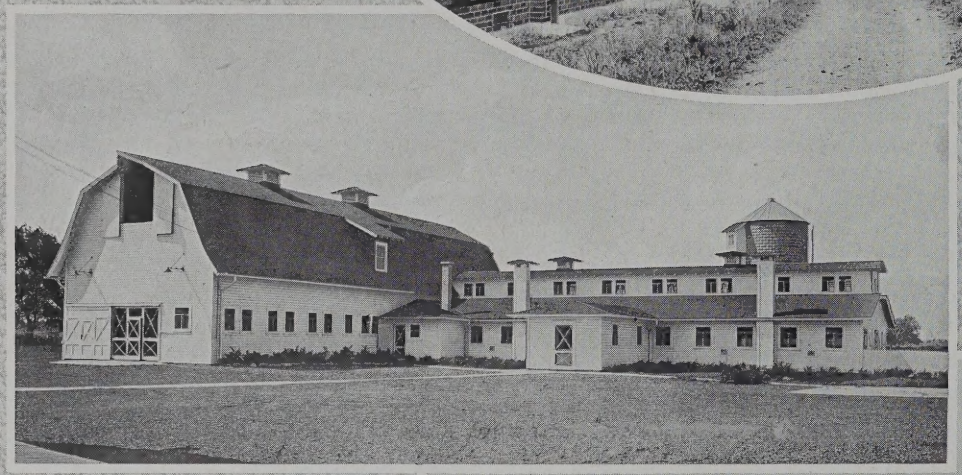
In addition to this, plan to get the most and best barn for the least money. This is not only a matter of careful floor plan arrangement, but of its proper coordination with the right method of framing. Much material can be saved or wasted in building. Plan to use standard sizes and lengths of lumber wherever possible, thereby saving waste as well as the time and expense in sawing this waste off. The interior of the barn should be free from all unnecessary posts and other structural members that would interfere with the convenient and economical handling of materials, stock, products and by-products. The exterior appearance should be neat and attractive and the barn should be strongly built and thoroughly capable of resisting the elements. The type of construction is very important from the money-saving point of view.

Sanitation and ease of keeping the barn clean are factors deserving serious consideration. The health of the herd is largely dependent upon light and airy quarters and upon good ventilation. The quality of its products, and their price can be no higher than the conditions under which they are produced will allow. The barn should be dry, well lighted, well ventilated, sufficiently warm in winter and always easy to keep clean, so as to insure healthy animals and a wholesome food product of maximum value for market.

Comfort, of course, is a vital matter in maintaining the maximum production of the cows. Practical tests have demonstrated, time and time again, that it pays well to make cows as comfortable and contented as possible. Too much thought and study cannot be given to the construction, arrangement, ventilation and equipment of the barn for the comfort of the herd and for the greatest profit to the owner.

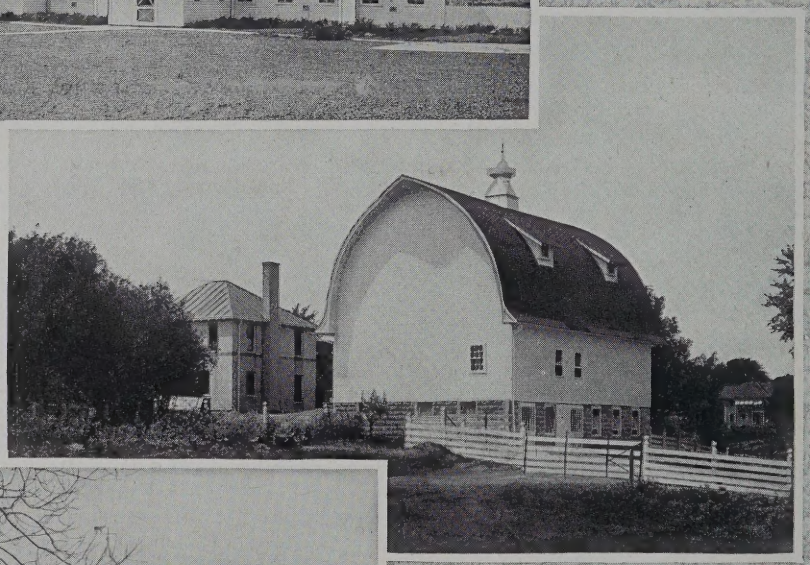
In fact there are so many things to be taken into consideration in planning a modern barn that will be entirely satisfactory in every respect when built, that the safest and best thing to do is to put the whole thing up to experienced barn plan architects. Tell them the necessary facts about the lay of the land, number and kind of stock you wish to house, and all other necessary information relative to the building as well as any particular ideas you want to put into it. Ask them to prepare and submit tentative plans for your approval. Thus, by working with them and taking advantage of their years of experience in planning thousands of barns, you can be sure of a barn that will satisfy. For this purpose we offer you the competent services of the Louden Barn Plan Department, every architect of which is a *farm building specialist.*

Louden planned and Louden equipped barn built for the late Geo. Batten, Montclair, N. J.



Beauty and Efficiency are embodied in this Louden planned and equipped barn. E. E. Lehmann, Lake Villa, Ill.

Beautiful Gothic Roof barn, Louden planned and equipped—Hunter Dairy, Fairfield, Iowa.



A one story dairy barn—Louden planned and equipped—Aldebaran Farms, Racine, Wis.

The Louden Barn Plan Department

First Of Its Kind In The Country

In helping farmers get better planned barns, the Louden organization has kept pace with their accomplishments in building better barn equipment. The Louden hay carrier, invented in 1867, made two-story barns possible and practical, and it was a natural consequence that The Louden Machinery Company should be the first to establish, in 1907, a Barn Plan Service to assist farmers in planning modern barns that most closely meet each farmer's individual needs. In building the best barn for the money invested—making it most sanitary and convenient, well ventilated, with maximum storage space and practical stall arrangements—Louden Barn Planning Experts give a service that has no equal in the country.

This service met a long-felt need in the beginning, but as valuable as it was then it is even more so today. The plans we have made, the problems we have solved and the experience we have gained during the years that have passed since 1907, in helping farmers with their building and remodeling plans, have gained for us a rich fund of good, practical knowledge. Thousands of barns, of all kinds and sizes, practical barns and elaborate barns, have been built from our plans and suggestions to meet the particular requirements of farmers, and many varied conditions, in all parts of the country. The benefit of all the building knowledge we have thus accumulated is available to any farmer who cares to ask for it.

We take just pride in the share we have had in raising the standards of practical and convenient barn architecture throughout the country, not only by our own planning and suggesting, but by leading the way for others. We know that intelligent planning has saved a great amount of money in construction costs for farmers, that it has saved them thousands of hours of labor in doing their barn work and given better health and greater comfort to the animals housed, thereby increasing the quality and quantity of their production as well as their owners' profits. Of the many letters received from farmers whom we have helped with building plans, the following is characteristic:

> The Louden Machinery Co., New Carlisle, Ind.
> Fairfield, Iowa. Jan. 8, 1922.
> Gentlemen:
>
> After using the barn, built by your plans, for over three years now, I cannot see where I could make one change and make the barn more convenient.
>
> This barn, as you know, was also equipped with your goods. I use your double end feed carrier and your litter carrier. These equipments are the most complete I ever saw and I looked at several makes before I purchased. I have my first five cents to spend on either of them and they are in daily use. I cannot see why I should ever need to replace them as I think they are good for a lifetime.
>
> Too much cannot be said for the plans of this barn—no posts in front of the stock, plenty of light, ample room for the carriers, just fine in every way. It is the only thing I ever built that I did not see some mistakes in about the time completed. Certainly if I ever build another barn I want the Louden people to assist in the plans for it.
>
> Yours truly,
> L. M. Waggoner.

When you build a barn you build for a definite purpose and that purpose should be kept constantly in mind. Whether you build for horses or cows, for dairying or feeding, for the storage of feed or farm implements, or for a combination of these, the correct amounts of space should be allowed for each purpose, the total of which should determine the size of the building. This rule seems simple enough, but becomes complicated when economy of construction is taken into consideration. In such matters our trained architects, thoroughly versed in the requirements of the modern barn, can be of real service to you. Unlike many organizations its services are limited strictly to one line of work and that line is agricultural architecture. From constant work, thought and observation along this one particular line, these men are naturally better qualified to handle barn building plans and problems than others of less experience.

The department is conducted by men of wide experience who are competent to handle all kinds of farm building. In addition to these skilled architects and draughtsmen we have a group of practical field men who know barns and barn construction from the ground to the ridgepole. These men are constantly traveling around through the country, in daily consultation with farmers concerning building and remodeling problems. One of these men is probably in your territory and will gladly call at your own farm, look over your building site, discuss your building plans, ideas and requirements with you at first hand — without cost or obligation of any kind.

The Louden Barn Plan Department makes every building plan an individual study. We are prepared to work out complete plans for you, from the ground up, or we will take your own ideas and work them out in detail for your builder. In either case the services will be rendered free or at a very moderate cost. Write us for any further information you desire.

Louden planned and equipped, 30-cow barn. The Three Oaks Farm, St. Paul, Minn.

"Built On Paper First"—P. N. Rawson, Hornick, Iowa.

These prize winners are comfortable in their Louden planned and equipped barn.—F. J. Bannister, Kansas City, Mo.

Louden planned and equipped—well lighted, well ventilated.—Col. C. T. Lipscombe, Easton, Md.

How Our Barn Planning Department Can Help You

Farmers realize the value of labor-saving barn arrangements more today than ever before, because of the shortage and high wages of farm labor. They also appreciate the fact that building costs are high. We therefore know that it is a matter of serious importance for them to build most economically and conveniently. Few farmers, however, possess a close knowledge of the ins and outs of planning and constructing a building to best advantage, and none of them are in a position to receive the many new ideas about construction and arrangement which our architects and field men come in contact with each year.

We find that a great majority of the farmers who avail themselves of the competent services of our Barn Plan Department depend upon us largely and follow our suggestions closely. The illustrations on this page were selected for no particular reason other than that they are typical illustrations of some of the rough preliminary ideas received from farmers, as compared with the arrangement suggested by our architects in reply to this particular request. It will be interesting to compare these two plans and study the reasons for the changes in the preliminary plan which were recommended by out Barn Plan Architects.

The chief objections to the original floor plan sketch were:

The horses and cows were together in the same room, which is contrary to good dairy practice and in fact is not allowed where certified milk is produced.

The pens were separated from the cow stalls by the horse stalls and were not properly accessible. In feeding the cattle and in cleaning out the cow pens and stalls, it was necessary to pass back and forth through the horse stable, wasting time and causing needless extra labor.

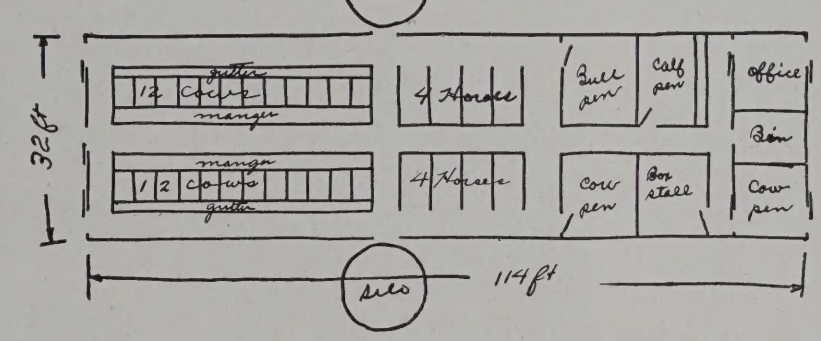
The silage and feed were widely separated—an inconvenient arrangement which would result in further loss of time and energy in doing the barn work.

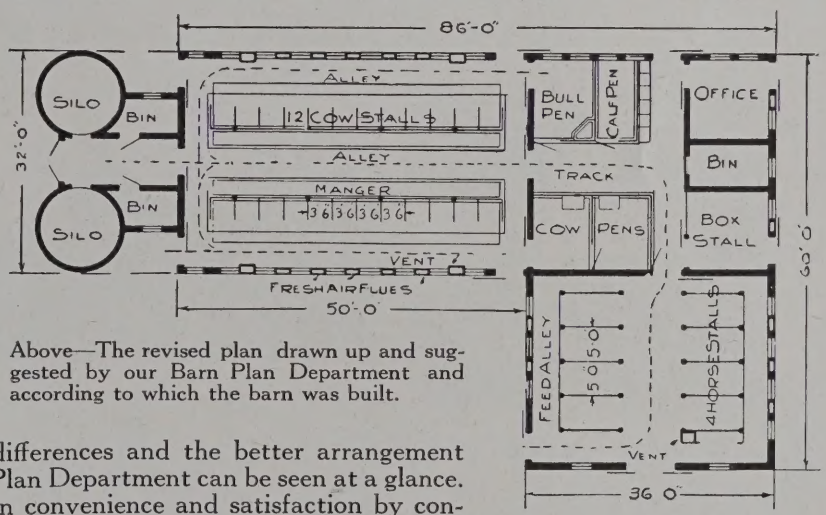
The feed bin capacity was too small for the number of stock to be housed in the barn.

The silos emptied into the litter alleys, which was very bad.

Doors were not properly located—facilities were poor for taking in and turning out stock.

Below — Roughly sketched idea of (silo) floor plan as received by Louden architects.





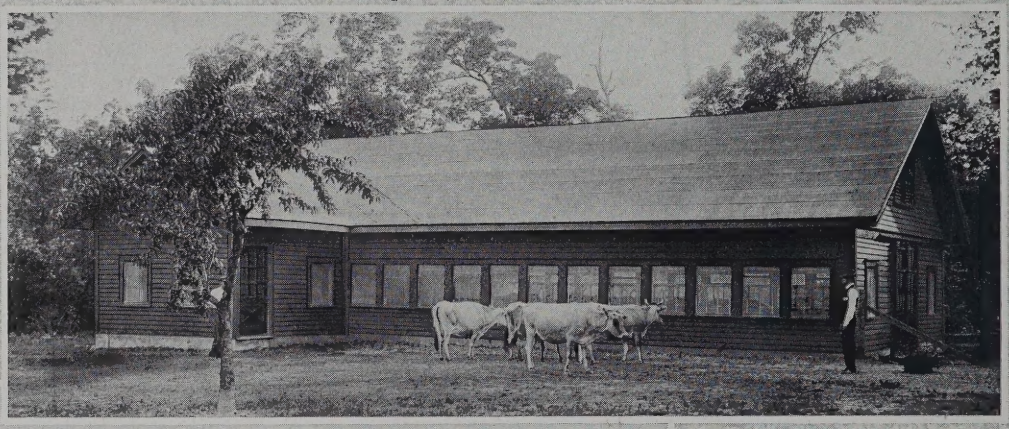
Above—The revised plan drawn up and suggested by our Barn Plan Department and according to which the barn was built.

These are the most noticeable differences and the better arrangement obtained by making use of our Barn Plan Department can be seen at a glance. This indicates what can be gained in convenience and satisfaction by consulting a trained organization of barn planning men before going ahead with the building. It is risking a great deal to put up a building without taking advantage of this service.

The barn shown above is a combination "L" type frame barn. Dairy wing is one story 32 by 50 feet with stalls for 24 cows faced in. Main barn is 36 by 60 feet with hay mow above, which is filled from the horse stable end. Mow capacity is 80 tons. The barn is well lighted and adequately ventilated throughout. Two 12-foot silos are located at the south end, with convenient feed bins in this section for feeding the cows. Another feed bin is located at the other end of the barn, near the horse stable. If preferred, the office could be eliminated and this space used for another box stall. Horse stable is separated from the cow stable by a partition. Feeding and barn cleaning arrangements are convenient for each. Certain changes could be made but on the whole it is a good, practical sort of barn.

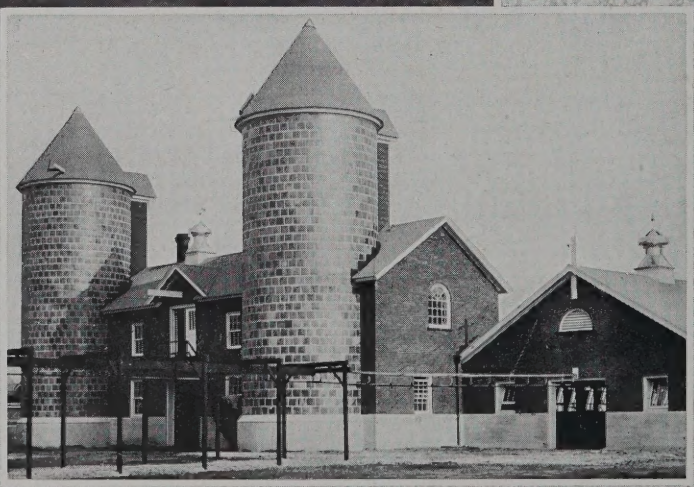
No barn problem too big for the Louden Planning Department.
Dudley E. Waters Barn,
Grand Rapids, Mich.

No barn problems too small for the Louden Planning Department.
W. C. Tunnah Barn,
Little Rock, Ark.



Louden planned and equipped.
R. Cohn,
Memphis, Tenn.

Louden planned and equipped barns on Kilby Farms,
Montgomery, Ala.



Be Sure That Your Barn Has Good Ventilation

One of the most important factors to be considered in building the barn is ventilation. For making milk, good air is as important as good feeding. Cows can no more be healthy and comfortable in stagnant air than humans, nor can they do their best work. Plenty of good air is an essential to heavy production. Not only that, but it is a preventative measure of high importance against tuberculosis and for that reason if no other it deserves serious consideration.

Dairy products also quickly absorb bad odors and a ventilating system is necessary to carry off foul stable air if a healthful food product of highest market value is to be produced.

Another very important reason for a good ventilating system is the removal of moisture from the stable. Cows exhale a surprising amount of vapor in breathing. If this vapor were condensed it is estimated that it would amount to 10 pounds of water per cow per day. This means that in a barn housing 30 head of cows the ventilating system would have to be capable of removing a total of 300 pounds of moisture daily. If there is no ventilating system, or if the system is faulty, a large part of this moisture simply condenses and causes decay in the building. This wetness on the walls and on the ceiling makes a damp, unhealthful and unsanitary barn.

The theory of natural ventilation as worked out by Prof. King, formerly of the University of Wisconsin, is the basis today for practically all barn ventilating plans. It is not a difficult system to plan, provided you have the necessary facts and experience to figure the requirements accurately. The plan will, however, be governed to a certain extent by the arrangement of the stock in the barn.

How This Ventilating System Works

The King System consists of fresh air intakes, foul air out-takes or flues, and cupolas for the up-draught. Knowing the number of cubic feet per hour of air required by different animals and the number of stock to be housed in the barn, our Barn Plan Architects are able to figure out the necessary sizes and locations for the intakes, out-takes and cupolas. The total area of the intakes should be a little larger than that of the out-takes. Experience also has proved to us that it is not advisable to serve more than 5 cows with one fresh air intake, nor more than 20 cows with one out-take flue. Locating the intakes and the out-takes varies with the plan of the barn and here again it is best to consult experienced barn plan men before construction is begun.

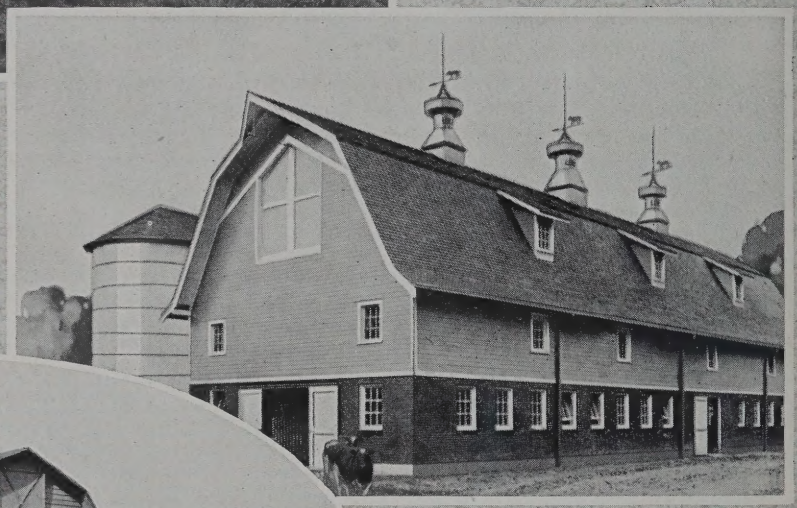
Fresh air is brought into the barn near the top of the stable wall, or from the ceiling, and the foul air is taken out through a vent running up to the cupola. It takes a continuous amount of heat to keep the foul air flues in operation and as this heat must be generated by the live stock in the room, *at the expense of food to keep them warm*, it is very important that the foul air flues be so constructed and placed as to pull out the largest amount of foul air with the least amount of heat. For this reason the out-take vent openings are located close to the floor. At the top of each out-take flue is placed a cupola so designed that the wind, in blowing through it, assists in pulling the foul air up the flue. This cupola will also, if properly designed and located and of the right size, prevent any down draught, which is a highly important part of the system.

For the most satisfactory and efficient operation of the ventilating system, the stable should be built as nearly air-tight as practical. The essential points required for best results are as follows:

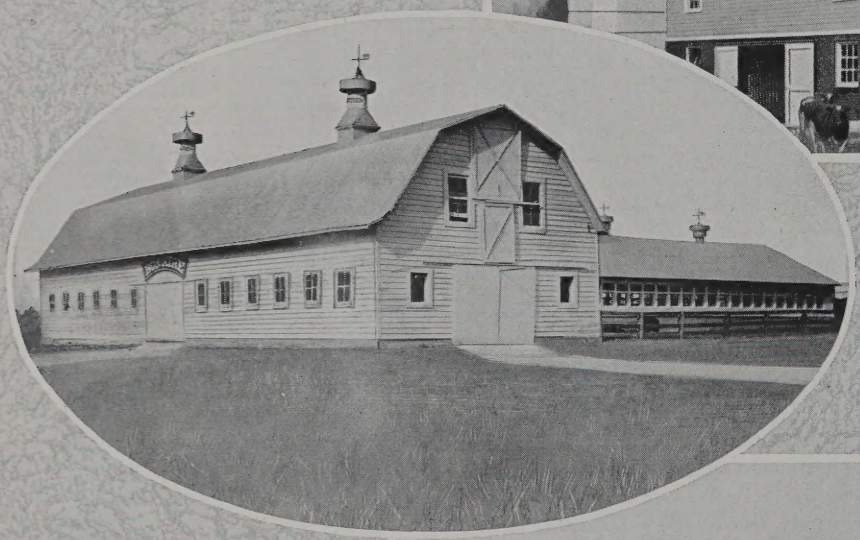
Walls and ceilings should be well insulated from outside temperatures. The foul air vents should be started near the floor and run up and connect to the cupola. Thus their operation is much like that of a chimney except that there is less heat at the bottom to make a good draught. Foul air vents should also be smooth inside, as straight as possible with no sharp curves or horizontal slopes, and of the same opening area all the way up. Their shape may be changed from oblong to square or round but the size of the opening should be the same from top to bottom. The fresh air should always enter the room from near the cows' heads and the foul air flues should be located behind. Thus the foul air will form a current passing to the rear and the cows will always breathe fresh air. Fresh air ducts should be evenly distributed along the wall or ceiling, depending on whether the cows are headed in or out, and several smaller ducts are better than one large one for fresh air. Foul air vents can be made larger and fewer in number. Open doors and windows cannot be used at the same time with the ventilating system as the cross air-currents tend to break the system up.

This type of ventilating system is especially designed for cold weather when the cows are in the barn practically all of the time and the barn must be kept closed and free from draughts. For ventilation in the summer, and at times when the outside temperature is about the same as indoors, window ventilators should be provided.

A beautiful layout—
Louden equipped.
W. S. Tonner Barn,
Torresdale, Pa.



Louden planned and
Louden equipped
throughout.
Hon. Thos. Taggart,
French Lick, Ind.



A Louden planned and
equipped barn for the
Sunny South.
C. E. Shuptrine,
Safford, Ala.

A good, well planned
barn made most con-
venient by Louden
equipment.
Manitoba Agr. College
Winnipeg, Man., Can.

Plan First — Then Build

Plan on paper before you build. It is easier and less expensive to make changes and correct mistakes with pencil and eraser than to pay carpenters for changing things, or to be forever dissatisfied with the plan of your barn after it is up.

The first and most important step in building a barn or other farm building is to have the plans drawn up in detail by the thoroughly experienced Louden Barn Plan Architects. These men make this their sole business and life's study. Quite naturally they are better fitted for work of this nature than those who attempt to plan a barn but once or seldom in their lives. They are specialists in this line of work the same as masons are in masonry, carpenters in carpentry and painters in painting.

It is, perhaps, *more* important to take advantage of the services of these competent architects. Drawing the plans is the fundamental step in the building program, the one which decides beforehand how economically the barn shall be erected and used and the amount of satisfaction it is going to give its owner in return for the money put into it.

What It Means to Build from Louden Complete Plans and Specifications

To secure complete plans and specifications from the Louden Barn Plan Department before building is to safeguard the interests of both the farmer and the contractor. The plans will tell the farmer what he is to get and the contractor what he has to do—no more, no less, in either case. It means satisfaction for all concerned and no cause for misunderstandings.

Having plans and specifications to go by, you can figure beforehand what the material is going to cost. You can also submit the plans to various contractors and get bids from all of them on an equal basis. You can then take the low bid without fear of the construction being slighted in any way in order to get the job on the lowest estimate.

In preparing plans for farmers, the Louden Barn Plan Architects figure to use standard sizes and lengths of lumber throughout, since this is the most economical lumber to purchase. Wasted material is thus saved, as well as the wages and time spent in sawing off this waste. Louden Plans always provide adequate strength in the building with a liberal margin of safety, but without extravagant waste in unnecessary and expensive material.

Barns planned by Louden Architects are noted for the ease with which the frames are raised. Three men, with a block and tackle, are sufficient ordinarily. The braced rafter type of construction which we recommend is also the strongest type of roof construction and the one most economical to erect, in both material and labor costs. It provides a roomier, less obstructed mow than the trussed roof barn or the type involving the use of heavy timbers with old-fashioned mortises and tenons.

With the barn all planned on paper by Louden Barn Plan Architects, the work of building can proceed rapidly and without delays, arguments or changes. Everything is so clearly planned in advance, with details shown, that the contractor can finish the job in the shortest possible time. Because of the high wages paid to men engaged in the building trades, this one factor of saving alone will save a great deal more than the small cost of the complete plans and specifications.

Take advantage of the Louden Barn Planning Department. It was established for your especial benefit and is maintained on a non-profit-earning basis for the service of farmers all over the country, with whose success our own is so closely linked. A large part of the Plan Department's services are free; those requiring a considerable amount of time and work are on a low, exact-cost-of-production basis. Taking into consideration the cost of building, considering also the high cost of farm labor and the need for greater convenience and better facilities for getting more work done in less time so that the profits in farming may still be maintained, it is purely good business judgment to consult trained and experienced barn building men on your building plans and problems.

Be sure that every detail of your barn is so properly planned before construction begins that the finished barn will be just as you want it—well lighted, well ventilated, big mow room without obstructions, so well arranged that barn work can be reduced to quick and pleasant work. The stock also will contribute with increased production because of their better health and greater comfort.

There are two kinds of barns—profit-making and profit-losing. It costs no more to build one than the other. For business purposes there can be no question as to which kind any real farmer wants. Besides this, a Louden planned barn is a fine advertisement for the man whose name is on the mail box out on the road. It will save money and mark you as the most up-to-date farmer in your neighborhood.

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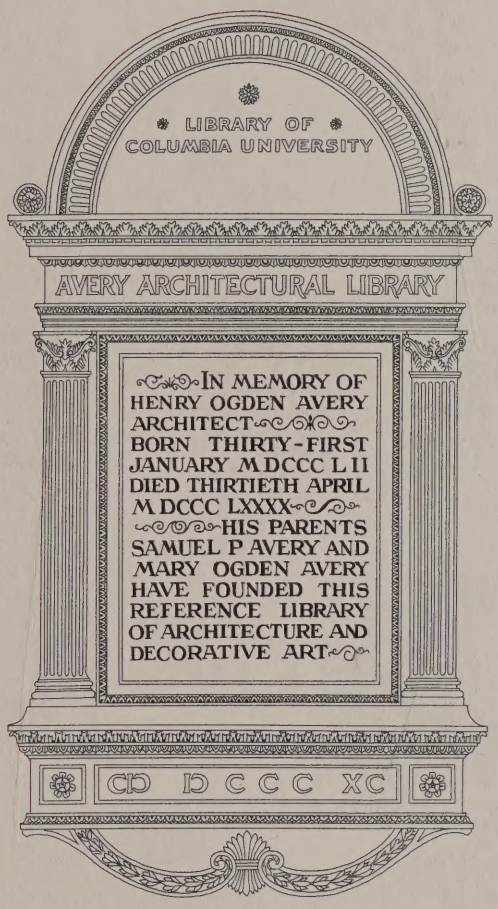

ROUND TOP FARMS
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